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Information Literacy: A Neglected Essential Learning

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Declaration

Statement of Originality

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ABSTRACT

This thesis investigates the assertions that: information literacy is the nexus between accessing information and the creative acquisition of knowledge; and that the teaching of a structured information literacy program is an educational imperative.

Oberg, Hay & Henri (2000) claim that there appears to be a lack of a genuine expectation by teachers that students will engage in all aspects of the research cycle. How students use information and engage in the information-knowledge process is determined by their expectations of the research process. These expectations are largely determined by the teacher's perception of information literacy (Coulter, November 2001). The thesis examines teacher beliefs that information literacy serves as a pedagogical strategy, one aim of which is the creative, personalised acquisition of knowledge. The study is of significance when viewed in the current climate of curriculum reform and transition on the national Australian and Tasmanian levels.

Interviews were conducted with 18 teachers and five principals in seven schools associated with the Catholic Education Office, Hobart Diocese. Interviews focused on teacher's perception of the term 'information literacy'; what teachers discuss when engaged in curriculum reform; and how, when and why teachers currently acquire information literacy skills.

The study was effectively structured using Englebart's Augmentation Conceptual Framework (Friedewald, 1997) and qualified by means of postmodern and poststructuralist approaches to investigation.

Findings from this study concur with Bruce (2000) in that teachers tend to categorise 'information literacy' as being associated with information technology, information sources, information process and information control. This finding has significant implications for Tasmanian schools in that the new Tasmanian Curriculum model integrates ICT as an all-encompassing key learning area. ICT needs to be framed in this context; as a tool of enlightenment, and an instrument that assists investigations.

Curriculum reform was recognised as being a significant, constant and continuing aspect of a teacher's life, regardless of school location and size. A concern regarding the lack of uniformity, influence and/or direction of the curriculum was expressed by all teachers.

Teachers interviewed generally expressed positive feelings about the philosophy and structure of curriculum reform and that carefully constructed information literacy programs can reflect current *Tasmanian Curriculum* philosophical frameworks and marry well with the various statements of learnings produced by the Curriculum Corporation. The implications for any professional development and teacher-conversation in information literacy are clear:

- Ensure all staff receive the same professional development in information literacy.
- Confirm that school curriculum documents inform teaching and learning programs and professional development opportunities explicitly link to these.
- Reinforce student involvement in information literacy activities by highlighting and enhancing their resilience in information seeking behaviour.

Teachers from all schools strongly expressed a sense of confusion regarding the term 'information literacy'. There were few opportunities for professional dialogue and adequate professional development with regard to information literacy. The study showed that if information literacy is to be embraced by primary school teachers regularly and across the

disciplines as an essential element in their inquiry-based teaching and learning programs, then school systems need to inform them about existing models and standards that give the term a tangible, 'teachable' structure.

CHAPTER 1. AN INTRODUCTION TO THE STUDY

I really don't have a grasp of what is meant by information literacy. In my capacity as Assistant Principal in putting reports together, it was one of the first things that did concern me because I realised if I didn't know what the term meant then many other teachers wouldn't either and I was right because many teachers thought it was a branch of information computer technology or computer literacy. My own understanding of it...(pause)...I guess it is a blurry thing that relates to the idea of the broad concept of text. You know, what is text? There's visual text and written text and there's auditory text and if you have information literacy, oh, well my limited understanding is that you are making sense of information that is available to you...but it (information literacy) is blurry and it's blurry because for most of us, the first time we have seen it was on the report (card) and there was no way that we...(pause)... any of us, can feel comfortable with the term. It might mean something that we have all been doing, but who knows. There is no way that we have received any professional development in it and the terminology has never been presented to us. We definitely do not teach it explicitly and it's such an intangible concept that it is impossible to assess and report on it tangibly. It's hard enough to assess someone on their listening skills let alone assessing information on speaking and listening too, but to actually determine how well someone gets information from their environment, well I don't understand how they expect us to do it (Respondent 22, 2006).

1. Introduction and overview

This chapter outlines a justification of this study. An emphasis underlying the section that discusses the *significance of the thesis* is the perspective of information literacy as an educational imperative. This leads to the section incorporating the *rationale*, which examines the implications of teaching and learning in an information-rich environment that has evolved with the introduction of technologies used in society. These social technologies, not the least being the influence of the Internet, have implications for enhanced educational opportunities. The next section regards a *critique of current teaching and learning practices* associated with information literacy skills programs. Finally, the *research questions* will be outlined and description provided regarding how they will guide research into the investigation into the hypothesis that:

information literacy is the nexus between accessing information and the creative acquisition of knowledge and that the teaching of a structured information literacy program is an educational imperative.

This hypothesis was constructed using criteria listed by Ball and Gall (cited in Wiersma, 1995, p. 41), who state that an hypothesis should state an expected relationship between two or more variables, should be as brief as possible consistent with clarity and testable. The researcher should have definite reasons based on theory or evidence for considering the hypothesis worthy of testing.

1.1 The significance of the study

The concept of the global village proposed almost twenty years ago by McLuhan and Powers (1989) is becoming a reality for much of the small percentage of the world who have access to information in the digital environment. Information is becoming accessible like never before and Tomonori (2004) has inferred, such is the influence of readily available information for so many, that a new culture is emerging; one where those who are unable to

access digital information are to be impoverished, whilst those who have digital access, will be empowered. The creation of this "ubiquitous society" (Tomonori, 2004, ¶4) is based on a culture of reliance on digital access to information anytime, anyplace and for anything. Such ubiquitous access to information, most of which if accessed via the Internet, is unsolicited and generally unorganised, and has consequences for the social, political and economic fabric of our culture if information literacy skills are not part of a student's education.

However, today's primary school age students need to participate effectively in contemporary society a society in which they will be adults ten years hence, and they must acquire a certain level of comfort and competence in using computers. Seymour Papert (*Children and computer technology: Analysis and recommendations,* 2000, p.5), as early as 1999, stated that "across the world there is a passionate love affair between children and computers...they know that they can master it more easily than their parents. They know they are the computer generation." Teachers will endeavour to incorporate aspects of a student's interests and expertise when planning, and according to Pressley and Harris, (2001, p. 469) effective teachers align their teaching strategies to incorporate computers in their class teaching and learning programs, confirming "recent analyses that have shown that teachers in excellent classrooms incorporate many research-supported interventions". There are, therefore, positive aspects associated with incorporating ICT to encourage students being information literate including bringing new tools for teaching, enhancing the creativity of teachers and students and allowing more intra-school and school-community collaboration (Fichera & Ronchi, 2004, p. 84).

Australia has all the characteristics of being an information society in that there are information-intensive organizations, a significant information sector, social use of information and it is a learning society where "knowledge is considered to be a valuable asset

and people with a high level of information literacy skills are sought after in the employment market" (Moore, 1999, p. 702). However, regardless of the ubiquitous access to information that is enjoyed by most Australians, do students emerge from primary school education with skills that allow them to discern the information, so readily available via the Internet, that characterise us as being an information society? There is a need to investigate what Australian primary schools are implementing in their curricula that address the recommendation made at the World Summit on the Information Society in 2003, which states "each person should have the opportunity to acquire the necessary skills and knowledge in order to understand, participate actively in, and benefit fully from the Information Society and the knowledge economy" (World Summit on the Information Society, 2003, ¶29).

Librarians have been the traditional 'gatekeepers' of information, although they have an important role in assisting students and teachers in acquiring some of the skills implied in the World Summit on the Information Society (2003). At much the same time that McLuhan and Powers were discussing the idea of the *Global Village*, the American Library Association confronted the challenge of this increasing information overload by issuing a *Final Report* (American Library Association, 1989) for the Presidential Committee on Information Literacy, defining four components of information literacy, characterised by the ability to recognize when information is needed and to locate, evaluate and use effectively the needed information. Claims by Henri, Sui-Cheung, Fong-Lok and Siu-Cheung (2006, p. 2) that "the abundance of information that typifies the current century is insufficient to guarantee the emergence of a knowledge society" reaffirms what many in the library sector and some in the education sector have been arguing for almost three decades: information literacy skills involving locating and discerning information are not naturally occurring; they need to be learned as part of a process of any task that expects students to independently engage with information.

This engagement implies students are set a task that relies on their skills in knowing what information they need (task definition), locate relevant and authoritative information sources, evaluating the sources on the basis of the task expectations, using the information for a purpose and having the ability to apply the skills in this process to solve similar tasks in the future (Bruce, 2002). The terms "information engagement" and "information investigation" are used to describe the practical application of these information literacy skills, with information investigation being used in the context of establishing a task involving information-rich activities, which then implies a student is expected to be involved in an information engagement. This information engagement involves the student in the processes intrinsic to being information literate, which is defined in *The Essential Learnings Frameworks: Introduction to the Outcomes and Standards* (Department of Education, Tasmania, 2003, p. 5) as "understanding how to effectively access, interpret, transform, create, communicate, evaluate and manage information in ethical ways using a range of sources".

1.1.1 Information literacy as an educational imperative

Dr Sigrun Hannesdottir, Director of the Nordic Council for Scientific Information states that:

> It can be argued that the training of future citizens to handle information should start in primary school...The vision of the information literate school community is that skills for searching for information and handling of data will be integrated with the subject teaching. Children of the future should learn how to deal with information at the same time as they learn their subjects. This is the only way we can prepare them for an uncertain future." (cited in Bruce, 2002, p. 14).

The significance to student outcomes being compromised by the omission of information literacy from any curriculum planning engagement is illustrated by the

conclusion contended almost forty years ago by Gerjuoy (cited in Toffler, 1970, p. 414) that "tomorrow's illiterate will not be the person who can't read; rather it will be the person who has not learned how to learn".

Information literacy needs to be viewed as the process of equipping students for engagement with an information rich environment, not necessarily an unsettling, intangible aspect of the curriculum. Classrooms have an imperative in developing thinking skills that are both resilient and transferable and enhance Costa's following appraisal of education:

> Education is one of the most powerful mechanisms for developing intellectual prowess...meaningful interaction with adults, peers and environment (are) essential in mediating the learner's intellectual development; learning is a continual transformation of inner perceptions, knowledge and experiences; and...all human beings have the potential to continually develop their intellectual powers throughout their lives. (Costa, 2001, p. xi).

1.1.2 The Internet and information literacy irreverence

There is no doubt the Internet is a powerful and persuasive influence in satisfying many students' and teachers' information needs. With regards to a student's expertise in being an effective seeker and manipulator of information, some would argue that the current Google generation have a self-belief based on their experience with attaining "good enough" (Frost, 2004, p. 68) results. This attitude of assuming information needs can be addressed by the 'one-stop-shop' that tends to characterise information access via the Internet is highlighted by Godwin (2006, p. 30) who states "they guess that their present research needs and what they need to know for the rest of their lives can be answered by a *Google* search" (Godwin, 2006, p. 30).

It is interesting that the *Google's* motto is "Don't be evil" and its goal is "not to make money, but to change the world" (Who's afraid of Google?, 2007, ¶5). The success of *Google* as an accepted tool for online information retrieval does reflect its simplicity of search design that does not require complex Boolean operators. The impetus now, more than ever, is on teachers to realise the need for providing and elaborating upon the explicit structure and process that is the framework intrinsic to an information literacy program. This is an imperative in order to meet the fundamental challenge facing primary school students when they engage in an information engagement with an information source as huge as the billions of pages offered by *Yahoo* or *Google*, which is highlighted by Alan Bundy who states, "sheer abundance of information and technology will not in itself create more informed citizens without a complementary understanding and capacity to use information effectively" (Bundy, 2004b, p. 8). Similarly, Danny Sullivan (2005) of *searchenginewatch.com* concurs with Bundy's previous statement; he has been observing the main web engines for over a decade and claims that, "size is a surrogate for relevancy...counting pages does not equal measuring comprehensiveness" (¶5).

Research by Selinger (2001) and Bilal (2000) concludes that students who are not explicitly taught information literacy skills read very little of the information presented in an online investigation and usually endeavour to find the 'perfect' page that will answer their question after initiating a search using natural language queries, rather than spend time in assessing available information and attempting divergent searches using associated keywords. The research undertaken by Wallace, Kupperman and Krajcik (cited in Bowler, Large & Rejskind, 2001), which was one of the few empirically detailed ethnographic studies of a primary school class engaging in online research, concluded that "students' engagement with the web was shallow and poor, and their information-seeking behaviour unplanned" (p. 204). Such conclusions add further conviction to the belief that information literacy, a process-based series of interconnected skills, needs to be explicitly taught in the curriculum. Studies by Orr,

Appleton and Wallin (2001) and Grant (2002) have further reinforced this view of the deeper and more holistic learning that takes place by students when they are engaging in explicit instruction. Students, therefore experience information literacy by acting to fulfil the requirements of teaching and learning throughout their curriculum, not as an incidental experience located in a library or computer laboratory.

1.1.3 The growth of human knowledge in a post-print age

For anyone involved in education, the future appears always 'here and now' and educationists must plan for the future today. Bundy (1998) highlights a relatively new condition known as 'information fatigue syndrome' that could afflict our primary school students' adult professional lives. He refers to a survey of 1400 managers in Australia, the UK, US, Singapore and Hong Kong in which people are becoming sick by being expected to absorb so much information. Similarly, not being able to locate and select creditable and reliable sources creates workplace inefficiencies. This research is confirmed by Breivik's (1998) prediction that the sum of human knowledge will double every 73 days by 2020, highlighting the importance of information literacy within every teaching and learning program.

If teachers in particular and education in general are to make the most of the information access opportunities that technology has enabled, then a teaching and learning program that engages students in effective information investigation will need to be promoted. Information literacy implies comprehension; and comprehension is associated with an understanding that is often reflected in reading. Teaching and learning programs that enhance information literacy skills may be simply modified from existing programs, readily available in print or online. Such an implementation may require a significant paradigm shift for some teachers who are yet to come to terms with the hypothesis forwarded by Carrington (cited in Kapitzke, 2003, p. 59), which implies that there no longer is an essential form of reading, especially for youth who thrive in this 'post-print' age where sense is very often made "through televisual and audio text".

Kapitzke (2003) goes further and raises the question of whether in fact as a society, we have moved beyond an information age and entered instead, a 'communication age'. This age, that is characterised by the potential of the global community, is being realised daily with the advent of technologies that allow for greater opportunities for sharing contact, and by implication, information. Regardless of definition, educators need to reappraise their approach to teaching students how to be effective information investigators, who become empowered and empower others by their engagements. This will involve shifting many teachers from their pedagogical stance that focuses on teaching core content to teaching process skills in a structured manner that involves the use of information (Kasowitz-Scheer & Pasqualoni, 2002).

1.2 Rationale for the study

There is research to suggest that a curriculum created by teacher practitioners has positive implications for student learning and enhanced teacher self-image (Flett & Wallace, 2002; Kent, Pligge & Spence, March 2003). This proposal seeks to investigate the extent to which information literacy is integrated within a curriculum created by participative decision-making based on teachers' interpretation of an innovative curriculum implementation. The research will hopefully highlight some of the multitude of factors that may influence an educator's implementation of curriculum reform as it applies to information literacy.

The contention of this thesis is that the corollary of not equipping students with information literacy skills, is a compromise of human potential and a resultant diminishing of intellectual potential. To conclude this section, the following passage from Professor Emeritus Gerard Egan's (2007) popular reference, *The skilled helper: A problem-management and opportunity-development approach to helping,* provides a focus for this study, in that it promotes the view that information engagement is not restricted to time or place. Rather, it is an authentic skill that will be used throughout one's life and is a true 'lifelong learning' that educators in every sector

need to acknowledge and plan for if students are to graduate with a growing awareness of their participation in the processes intrinsic to information literacy:

> Information gathering should lead to a clear definition of the issues to be decided...However, information gathering is practically never straightforward. Decision makers, for whatever reason, are often complacent and engage in perfunctory searches; they get too much, too little, inaccurate, or misleading information (Egan, 2007, p. 237).

Egan certainly highlights an issue that was apparent to me as a classroom teacher of 23 years experience, a personal appreciation that was confirmed by observations and discussions with colleagues over the years and one of the impetuses behind this thesis. Expecting students to be confident and competent information gatherers without skilling them in the processes of information literacy is certainly, from Egan's perspective, a challenge. It is a challenge which confronts teachers who are expecting students to be independent participants in a task that involves information literacy skills. It is expected that this study will confirm whether teachers are confident in assigning students tasks that involve information gathering, and investigate the reasons why some students may succeed in this undertaking, whilst others may either fail or not be given the opportunity to locate and analyse information sources independently.

1.2.1 Teacher-designed curriculum

Information literacy is viewed by this researcher as the nexus between information and knowledge formation and worthy of study, with this view being supported by authoritative proponents of information literacy such as Bruce (1997), Todd (1996) and Bundy (2003). In Tasmania, teachers are entrusted to use guiding documents that include *The Essential Learnings Frameworks* (Department of Education, Tasmania, 2002; 2003), the new *Tasmanian*

curriculum: English-literacy. K-10 syllabus and support material. (Department of Education, Tasmania, 2007a), the specific national statements of learning for key learning areas such as *Studies of Society and Environment* (Studies of society and environment: a curriculum profile for Australian schools, 1994), and a plethora of exemplars and proformas such as those proposed by Murdoch (Murdoch, 1997; 2004) and Blythe (1998) that identify and support inquiry-based pedagogy.

There is, in this curriculum design, scope for information literacy to be included and be given priority. However, the incorporation of information literacy skills into a curriculum may be compromised if the planners are not familiar with the important role these skills play in specifically reflecting key outcomes in the *Thinking* essential learning (Department of Education, Tasmania, 2002) such as "Gathering information (which is) the ability to identify, locate, select and collect information...an essential part of learning, particularly in an information-rich world" (Department of Education, Tasmania, 2002, p. 15). This complements the *Communication* essential learning (Department of Education, 2002) which presents the following question to educators to address in their curriculum planning: "In what ways can learners develop discernment, judgement and discrimination in accessing information on a global scale?" (Department of Education, Tasmania, 2002, p23).

A key purpose of this study is to better understand how primary school teachers acquire an understanding of the term 'information literacy' as it applies to their teaching context. Given the circumstances in Tasmanian schools whereby class teachers create their own curriculum using documents that include the *Essential Learnings Framework* (Department of Education Tasmania, 2002; 2003), this investigation is seeking to establish the validity of research that highlights a lack of clearly defined information literacy programs in a crowded curriculum (Milam, 2002; Oberg, Hay & Henri, 2000; Ramirez, 2002). If this research supports the

conclusions that teachers are not implementing information literacy teaching and learning programs, then a greater understanding by primary school teachers of the semiotic nature of 'investigative engagement' could be identified as a focus for professional development by teachers. This emphasis on professional development in information literacy becomes, as stated in the hypothesis, an educational imperative, especially with the increasing reliance of accessing information in the electronic information environment; such an emphasis therefore, will allow information literacy sessions conducted by teachers to offer more scope for authentic learning.

1.3 A critique of the teaching and learning of current information literacy skills.

The research in this thesis will provide a critique of the teaching and learning of current information literacy skills and draw attention to the demands of genuine curriculum reform by teacher practitioners who are beset by the ramifications of societal changes on their classrooms. Subsumed to any information literacy program is a need to ensure teachers offer a genuine differentiated curriculum (Grassian & Kaplowitz, 2001).

Research into the area of information literacy is not new, being the subject of program development since the 1980's (Breivik, 1998; Spitzer, Eisenberg & Lowe, 1998; Henri & Bonnano, 1999; Rader, 2002), with Australian researchers being quite prominent in the promulgation of this transformative aspect of learning (Virkus, 2003). The attractiveness and real strength of any well-designed information literacy program is its ability to enhance "the real life experiences of information use into the classroom, and creating opportunities for critical reflection on the learning process" (Bruce, 2002, p. 8). Through strong emphasis in professional development in inquiry-based learning, teachers now have an understanding of an integrated curriculum (Blythe, 1998 ; Murdoch, 2004) and the numerous strategies that allow for whole-brain thinking and deep learning (Gardner, 1983; de Bono, 1999). These professional development opportunities are all part of quite dramatic reforms and realignment in pedagogy

and curriculum, which reflect an inquiry-based approach to teaching and learning, which accord strongly with the intent of information literacy progams.

To engage students in being effective investigators and manipulators of information, in an information rich world is undoubtedly to empower them and to enable authentic lifelong learning skills to be nurtured. Spitzer, Eisenberg and Lowe (1998) went further and suggested that the teaching of information literacy skills is a vital survival skill in the information age. Hazel (cited in Foggett, 2002) highlights the commitment that has recently been made by education authorities in ensuring schools take on the responsibility of explicitly teaching the processes and skills associated with the term. Various programs have been published to guide the process of incorporating information literacy in the existing curriculum. Every state and territory's education authority making explicit mention of information literacy as a teachable set of outcomes with the Australian Capital Territory Department of Education & Training and Children's Youth & Family Services Bureau's publication, *Information access curriculum support paper: Incorporating information literacy and information technology* (1997) and the *ILPO – Information Literacy Planning Overview P/K – 7 Revised Edition* (Capra & Ryan, 1999) being early publications that teachers could make specific reference to when designing any teaching and learning program involving information literacy. These earlier publications are complemented by more recent teaching references including the 'locally' produced *Being information literate support materials* (Department of Education Tasmania, 2006a).

Information literacy implies effectively defining the question, locating information and being able to evaluate information. These skills that are intrinsic to being information literate in the ever-widening range of information mediums must not be specific to place or medium. Martin (1997) suggested that, "students, with guidance when necessary, should be encouraged independently or collaboratively to discover effective methods for dealing with information" (p.

99). The traditional perception held a generation ago by many teachers that information literacy is library-oriented and text based (Bowler, Large & Rejskind, 2001; Mokhtar & Majid, 2005) and therefore a librarian's role, has become redundant with the incorporation of new technologies in the classroom or in computer laboratories. Any teaching and learning of information literacy skills needs to reflect this general processing, rather than be site specific. Consequently a number of programs have been implemented that "teach information literacy in schools in the United States, Australia, New Zealand, South Africa, the United Kingdom and elsewhere in Europe" (Mokhtar & Majid, 2005, p. 36). It is the intent of this research to investigate how this world-wide recognition of information literacy being an essential learning, has been interpreted and implemented by teachers in seven schools within the Catholic Diocese of Hobart, Tasmania.

1.3.1 Teacher self-efficacy

It is proposed that there are direct correlations between a teacher's attitude toward Information Communication Technology (ICT), their understanding of information literacy's role in planning a comprehensive curriculum, and their students' subsequent effective engagements with information literacy tasks. This is supported by research that found quality and quantity of prior experience in ICT influenced self-efficacy and anxiety exhibited by practising teachers (Medvin, Reed & Behr, 2002). It is suggested that by identifying certain deficiencies in self-awareness of information literacy, the teacher may correct such deficiencies to allow enhanced investigative engagement with information literacy and have greater self-efficacy with incorporating information literacy into their curriculum as an example of a constructivist approach by teachers in their pedagogy.

Research by Branch (2004) indicates that pre-service teachers generally have a very poor appreciation of the importance of information literacy in their future students' lives, with only one participant out of 24 being aware of an understanding of the term, 'information literacy'.

This lack of appreciation of the term, however, does not imply an unwillingness to implement an information literacy program for prospective students, which is exemplified by by a pre-service teacher who stated "I would also like to think that I'll be passing skills other than the primary subject to my students as well – things such as how to organize, how to wade through information to find what's really important, etc" (Branch, 2003, p. 41). This research that highlights a general, almost total unawareness of information literacy and its potential, has quite serious repercussions if there are similar conclusions that are reached in this study in that information literacy, as portrayed by research in a number of countries, is not merely a 'buzz word' that is transitory; it has the potential to be one of the key skills that will need to be taught this century, and prospective teachers who are emerging from university would be expected to commence their profession with an awareness of such theories and any corresponding methodologies. There is a need, therefore, to challenge teachers in their epistemenological philosophy as it is revealed in their teaching and learning programs. Teachers need the confidence not to shy away from the belief that learning can be dangerous because it can raise questions and "disturb the status quo in society" (Jarvis, Holford and Griffin , 2003, p. 75).

1.3.2 Information literacy as part of 'best practice'

Teachers have been, and continue to be informed about educational best practice, which Bruce (2002) claims is a necessary prerequisite for the successful adoption of information literacy. There should, therefore, be considerable evidence of the effective implementation of information literacy programs by classroom teachers in their planning. However, research by Candy (2002), indicates a disregard by national authorities that have an education and training responsibility, to ensure the provision of an explicit information literacy framework being subsumed in many school's curriculum documents or teaching and learning programs:

> Few, if any, national governments have committed to major educational or social initiatives that would see widespread adoption of information literacy

training or assessment for their populations. Most initiatives tend to be piecemeal, in general aimed at limited sections of the population.

(Candy, 2002, p.12)

Teachers need to plan opportunities for students to be critical and independent users of information. This implies engaging purposefully with information, not merely completing shallow learning tasks that relate to simple fact-finding activities. Intrinsic to such a paradigm is an emphasis on the development of intellectual skills or higher-order thinking skills according to Bloom's taxonomy of educational objectives in the cognitive domain (cited in Bowler, Large & Rejskind, 2001, p. 205), of which the higher order thinking is associated with the last three categories listed in Table 1.

Knowledge	The ability to identify, define, recall and recognise.
Comprehension	The ability to explain, restate, demonstrate.
Application	The ability to apply, generalise, organise, and restructure knowledge.
Analysis	The ability to categorize, distinguish, deduce, compare.
Synthesis	The ability to produce, develop, write or tell.
Evaluation	The ability to justify, judge, argue and assess.

Table 1 Bloom's taxonomy of educational objectives in the cognitive domain

This research will, therefore, also be obliged to study the notion of the context of knowledge and to examine the 'epistemological journey' alluded to by Adams (2002) who believes that teachers need to be aware of aspects of cognitive development theory as it:

> Enables teachers to map students' journeys through qualitatively different views of knowledge, from certainty through uncertainty toward relativistic or contextual thought. Understanding this journey helps teachers make sense of the complex learning that takes place...complexity rooted in multiple sources of information, contradictions to unexamined thinking,

and new and startling perspectives, which taken together suggest a developmental pressure cooker. (Adams, 2002, ¶ 7)

To allow students time to reflect and question is accepted practice and is grounded in the Socratic method (Holt, 1967). What is new in this pedagogical equation, however, is the burgeoning information environment from which teachers are able to draw from, and direct students to, in this quest to discover answers to questions. It is an intention of this thesis to compare the proposed information literacy framework as defined in the relevant *Essential Learnings Frameworks* (Department of Education, Tasmania, 2002; 2003), the new Tasmanian Curriculum Framework (Department of Education, 2007) and supporting documents (Information Literacy, 2003) to the nine *Information Literacy Standards* (American Library Association, 2004a) developed by CAUL. It will be useful to conclude how authentic is the *Essential Learnings* proposition, when compared to the CAUL 'parent' document, the nine standards of which are identified in table 2.

Standard 1	The student who is information literate accesses information efficiently and effectively.
Standard 2	The student who is information literate evaluates information critically and competently.
Standard 3	The student who is information literate uses information accurately and creatively.

Independent Learning

Standard 4	The student who is an independent learner is information literate and pursues information related to personal interests.
Standard 5	The student who is an independent learner is information literate and appreciates literature and other creative expressions of information.
Standard 6	The student who is an independent learner is information literate and strives for excellence in information seeking and knowledge generation.

Social Responsibility

Standard 7	The student who contributes positively to the learning community and to society is information literate and recognizes the importance of information to a democratic society.
Standard 8	The student who contributes positively to the learning community and to society is information literate and practices ethical behaviour in regard to information and information technology.
Standard 9	The student who contributes positively to the learning community and to society is information literate and participates effectively in groups to pursue and generate information.

Table 2. Information Literacy Standards

1.4 The research problem and research questions

Charles and Mertler (2002, p. 61) state "a research question is the fundamental question in the research topic". The three research questions that were devised to guide the research process were chosen carefully and with due consideration given to the purpose of addressing the project's hypothesis (Wiersma, 1995, p. 40) that information literacy is the nexus between accessing information and the creative acquisition of knowledge implying that the teaching of a structured information literacy program therefore, should be an educational imperative. Fundamental to this investigation are the following three research questions:

1 **What is a teacher's perception of the term 'information literacy'?**

2 **What do teachers discuss when engaged in curriculum reform, especially in relation to information literacy?**

3 **How, when and why do teachers currently acquire information literacy skills?**

The three research questions provided the focus for the interviews that were conducted with 18 teachers and five principals employed in seven Catholic primary schools in Northern Tasmanian in late 2006. The interviews were taped, with the transcripts analysed and then

used to provide the emphasis for Chapter 4 of this thesis. The research questions were then scrutinized and different aspects of them were then reframed into related questions using Englebart's Conceptual Framework (Friedewald, 1997), which will be elaborated upon in Chapter 3. This structure and reflection is necessary and extremely important because the manner of questioning, especially as they relate to the dimensions and boundaries that one subscribes to the three research questions, become the focus of this enquiry and the 'headwaters' of data collection (Strauss & Corbin, 1990, p. 36).

1.4.1 Research Question 1.

What is a teacher's perception of the term 'information literacy'?

The intent of this question is to gain a clear understanding of how the factors that help determine a teacher's beliefs influence their understanding of information literacy. The research question will address the background research already discussed early in this chapter that proposes the view that teachers have a narrow view of the term 'information literacy', subsuming the term almost solely within the context of technology. This question appreciates and explores the teachers' own interpretations of information literacy from many perspectives including the information communication technology perspective.

This study is endeavouring to test the research hypothesis that information literacy is the nexus between accessing information and the creative acquisition of knowledge; such a hypothesis implies the teaching of a structured information literacy program, therefore, as an educational imperative. Question one endeavours to investigate the hypothesis by exploring an assumption that teachers have a narrow view of the term 'information literacy', with teachers subsuming the term solely within the context of ICT and/or an inconsequential aspect of reading comprehension. This narrow interpretation of information literacy, if validated, is viewed as very concerning when viewed in the context of Bruce's (1997) elaboration of seven descriptions of conceptions of information literacy. Her groundbreaking

studies in investigating an 'anatomy of awareness' of information literacy among tertiary educators in the mid-1990s culminated in her categorising seven descriptions of conceptions of information literacy in which she implies that, apart from viewing the term from the information technology conception that is used for information retrieval, information literacy was also conceptualised or understood to mean information sources; information process; information control; knowledge construction; knowledge extension, which culminate in the wisdom conception where information literacy is understood by using it wisely to benefit others (Bruce, 1997, p. 110). Clearly, information literacy is far more sophisticated than to be solely associated with technical proficiency in ICT and an investigation of this assumption relates to research question one, which examines the teacher's perception of information literacy.

It is important to endeavour to understand a teacher's perception of information literacy because it is a key influence on the success, or otherwise, of a curriculum initiative. Research by Prestridge (2008, p. 8) concludes that a teacher's perception of curriculum innovation, especially when any such innovation requires formal reporting to parents, is influenced by a teacher's prior knowledge of the learning, the resources available to support the initiative and how valuable the teacher feels the initiative is with regards enhancing student learning. An important aspect of this study, therefore, is exploring how teachers interpret the term, 'information literacy' and the concomitant acquisition of skills in teaching information literacy, and any associated attitudes related to the teaching and reporting in information literacy.

A teacher's acquisition of an understanding of information literacy may have been formed in his or her pre-tertiary education, pre-service teaching programs or professional learning opportunities as practicing teachers. It is, however, within the context of the teacher's school

culture, that any learning is implemented and it is within this specific school culture that an acquisition of understandings and practices associated with information literacy is refined. Schein (1985, p.6) states that the foundation of school culture is, "the deeper level of assumptions and beliefs that are shared by members of an organization, that operate unconsciously". It is important, therefore, to determine what is a teacher's perception of the term, 'information literacy', because different interpretations may influence a school culture either positively or detrimentally and is an important feature of any successful implementation of curriculum change.

Research question one explores the teachers' own interpretation of information literacy from many perspectives including the information communication technology perspective. The role of technology to illuminate and invigorate the curriculum and to communicate them in ways students can relate is expressed by Summers and Lelong (2005) who state:

> Modern students communicate and process information differently... the natural visual literacy that children now seem to develop from an early age...educators must have clear ideas about their expectations of information and communication technologies and their relationship to traditional syllabuses. This is an issue that goes to the heart of curriculum change, the role of teachers, *Essential Learnings* and the needs of students and societies in the 21st century (Summers & Lelong, 2005, p.25).

It is the researcher's view that in order to be involved in a change process and embrace curriculum reform positively and effectively, not only do terms such as 'information literacy' need to be defined, but they also need to be discussed in a non-confrontational forum of peers who collaboratively identify the relative strengths of the curriculum framework proposal. Curriculum reform implies that teachers are learners who "make

connections between their classroom context and their professional learning context outside the classroom" (Fox, 2008, p. 42). Information literacy is a reportable element and, for this aspect of literacy to be authentically assessed, there implies a need for change on behalf of some teachers who will need to accommodate the teaching of information literacy skills into their programs.

Any curriculum reform involves elements of self-reflection for the teacher (Strauss & Corbin, 1990, p. 34). Curriculum reform is, for most teachers, a personal and quite dramatic intrusion into their role, which is a reflection of their own beliefs regarding education in general, and their teaching style in particular. The following statement by Keys (2005, p. 501) quite poignantly reinforces this fragility that is associated with change:

> To change curriculum and pedagogy is to change a teacher's beliefs in educating a child. These beliefs of the teacher find their foundation in the teacher's own personal value system which, in turn, has been fashioned, shaped and reinforced through personal experience as a student, formal teacher training, teaching experience and family upbringing...a teacher's beliefs provide the basis for his or her motivation to change.

1.4.2 Research Question 2.

What do teachers' discuss when engaged in curriculum reform especially in relation to information literacy?

Teachers inhabit a world in which, whilst recognising the importance of collaboration, they also realise that much of what they do implies being autonomous within an organisational structure. For some teachers, curriculum reform may be viewed as establishing unnecessarily ambiguous parameters in order to satisfy the learning and teaching needs of a school community (Harris, 2005, p. 419). Undertaking research associated with issues related to

curriculum ownership will examine the external, hierarchical aspects of being an educator. Issues such as professional development, school or educating authority referring teachers to curriculum documents and power aspects of curriculum control will be examined as part of this research question's investigation and analysis. It is the intent to analyse what the teacher-interviewer discussions reveal about the reform process from the teachers' perspectives, which concerns research question two that seeks to investigate what teachers discuss when engaged in curriculum reform.

There is weight to the supposition that regards curriculum as being in a state of constant change as it deals with the society it serves (Stock, 1996; Watt, 1999). This process of confronting change by implementing curriculum and pedagogical innovation can be challenging to many in the profession. The implementation of any curriculum reform is associated with a degree of angst experienced by practitioners who are often isolated from high order decision-making that synthesised the documents that guide and drive the reform (McCollow & Graham, 1997). Working to resolve this assumption examines the personal domain of being an educator, which relates to research question two.

National curriculum reform was certainly becoming a key agenda item as early as 1989 with the 1989 Hobart Declaration on Schooling (*The Hobart declaration on schooling,* November 28, 2000), in 1991 with the Finn Report (Australian Education Council Review Committee, 1991) in 1992 with the Mayer Report (Mayer, 1992) and more recently the Adelaide Declaration On National Goals For Schooling In the Twenty-First Century (*Adelaide declaration on national goals for schooling in the twenty-first century,* 1998) that superseded the 1989 Hobart Declaration. Bluer (1992) predicted that curriculum reforms at the national level would have a significant impact on the work of Australian teachers in the following decade at least and, due to a general ignorance of the reform processes and principles among the vast majority of teachers, that the "the national reform process will be halted before it has

really begun. Once the issue of curriculum ownership has been sorted out, then the process should lead to reform of the curriculum itself" (p. 19). Undertaking research relating to this assumption will examine the external, hierarchical aspects of being an educator and will analyse what discussions reveal about the reform process from the practitioners' perspectives, which relates to research question two that seeks to investigate what teachers discuss when engaged in curriculum reform.

Therefore, it can be established that there is a need to address the question, "What do teachers discuss when engaged in curriculum reform?" because such a question allows the researcher to explore the strategies and systems that underpin effective curriculum reform. If teachers are to discuss information literacy within the context of curriculum reform, then research by Holmes (2007, p. 17) concludes that information literacy needs to be linked to school improvement and be viewed within the context of a school-specific issue, rather than an imposition by an external agency. This question allows for an examination of the intent of purpose exhibited by teachers who are involved in curriculum reform, and especially allows for identifying whether information literacy features strongly as a clearly defined school-specific aspect of school improvement.

1.4.3 Research Question 3.

How, when and why do teachers acquire information literacy skills?

Research question three, which examines the nature of how, when and why teachers acquire information literacy skills, has an emphasis on seeking elaboration and clarification for the process of teacher learning in this area. This includes considering any impediments experienced by teachers when incorporating and implementing information literacy skills that reflect, ultimately, the acquisition of such skills. What should count as knowledge with regards the cultural context of knowledge, knowledge as power, transience of knowledge and commodification of knowledge (Gane, September, 2003; Hellström, T., & Raman, S.,

July/September, 2001; Mittelstrass, 2003) will become a focus of this research to support the investigation of research question three and conducted with the understanding that these interpretations are viewed through the perspective of the teaching practitioner.

To support research question three's inquiry, which involves understanding how, when and why teachers acquire information literacy skills, an investigation will be undertaken into research that indicates a polarity between the 'computer generation' currently enrolled in primary classrooms (Shields, 2000; Seng & Choo, 2007) and the more ICT-hesitant teaching staff (Mason, 2000; O'Rourke, 2003; Riley, 2007). Conclusions from this research can be extrapolated from the interview analysis undertaken with teacher participants involved in this study. It is envisaged that the research will result in establishing whether there is a need for an epistemological reappraisal in the context of teaching and the information-knowledge interchange. There will, therefore be an acknowledgement of the notion that information is being taught as a cultural artefact, an aspect of power, transient, a commodity or a 'means to an ends', with regards teaching 'regurgitive facts' as a reflection of a crowded curriculum (Luke & Kapitzke, 1999).

Asking the question, "How, when and why do teachers acquire information literacy skills?" is very relevant to this study because teacher learning is generally acquired within the classroom, whilst engaged in teaching students and being confronted with the exigencies of the implementation of teaching and learning programs, rather than during professional learning opportunities (Peterson, McCarthey &Elmore, 1996). If professional learning or teacher discussions regarding information literacy is isolated to professional learning opportunities or if information literacy is discussed briefly at a staff meeting in the context of a mandated reporting element, it must be assumed that teachers will have both very different interpretations of the term and possibly a narrow range of teaching strategies to employ in teaching the skills intrinsic

to information literacy. Hayes and Noonan (2008, p.23) conclude that an effective professional learning strategy is characterised by four cornerstones: a focus on time; a focus on support; a focus on leadership; a focus on students. Addressing this question relating to how, when and why teachers acquire information literacy skills will allow an evaluation of the role professional learning in the acquisition and implementation of a teacher's skills in teaching information literacy.

1.5 Summary of Chapter 1

As illustrated in this chapter, the term, information literacy, may seem new, novel and even transitory (McGregor, 2005). However, as highlighted throughout this chapter, the intent of information literacy is intrinsic to education in its purest definition; that is to allow learners to engage effectively and relatively independently in an information investigation that results in resolution of questions and addition and/or modification of knowledge. The chapter presented a justification for the study in the context of information being an educational imperative, especially in these times of inquiry-based pedagogy and outcomes-based curriculum design which places much onus on the teacher to design his or her curriculum.

This intent in information literacy education is obviously not new and Freiere's *theory of the pedagogy of the question* (Bruss & Macedo, 1985, pp 8-9) was discussed in the mid 1980s as a means to facilitate learning through a powerful engagement with information and which is explained as:

> A practice that forces and challenges the learners to think critically and to adopt a critical attitude toward the world. Unlike the pedagogy of the answer which reduces learners to mere receptacles for pre-packaged knowledge, the pedagogy of the question gives learners the 'language of possibility' to challenge the every constraints which relegate them to mere objects.

Chapter one confirmed the close relationship between ICT and information literacy. This relationship was interpreted with the realisation that information literacy has been both enhanced and diminished through the growth of relatively cheap and easy access to a wealth of information via ICT, especially the Internet. Teacher self-efficacy with ICT was presented as an influence on the challenge for some teachers in implementing information literacy programs. This is viewed as a challenge to the effective implementation of information literacy programs, despite the acceptance by researchers (Adams, 2002) and commentators (Candy, 2002) that information literacy is viewed as part of 'best educational practice'.

The three research questions were presented and elaborated. These research questions were aligned closely with the rationale of this project in that, if teachers are given the opportunity to discuss their own interpretation of a term that, to many, is new, transitory or novel, then they will be in a stronger position to reflect on whether they need to acquire information literacy skills in order to allow their students to have deeper learning experiences. It is presented, therefore, that the intent of this study is to enlighten teachers of their obligations in ensuring they not only have a familiar and a clear understanding of information literacy, but are also confident and competent in its application to the classroom. The critical appraisal of information literacy will hopefully accord with the view of the former President of the American library Association, Nancy Kranich who stated:

> In the 21st Century literacy takes on a new and expanded meaning. Information literacy means being information smart. It means knowing when a book may be more helpful than a computer. It means knowing how to make critical judgments about information: its completeness, accuracy, viewpoint. Information literacy is a critical skill in today's information jungle (cited in Hinchcliffe, 2003, p. 11).

1.6 Overview of remaining chapters in this thesis

Chapter One, *Introduction*, outlines a justification of this study. An emphasis underlying the section that discusses the *significance of the thesis* is the perspective of information literacy as an educational imperative. This leads to the section incorporating the *rationale*, which examines the implications of teaching and learning in an information-rich environment that has evolved with the introduction of technologies used in society. These social technologies, not the least being the influence of the Internet, have implications for enhanced educational opportunities. The next section regards a *critique of current teaching and learning practices* associated with information literacy skills programs. Finally, the *research questions* will be outlined and description provided regarding how they will guide research into the investigation into the hypothesis that information literacy is the nexus between accessing information and the creative acquisition of knowledge implying that the teaching of a structured information literacy program therefore, should be an educational imperative.

Chapter 2, *Relevant Conceptual Literature,* examines the existing literature in the field of information literacy. The reader will understand that these three research questions present the thesis in the context of a teacher who is in the midst of curriculum reform and offers the teacher an opportunity to acknowledge and incorporate information literacy as a means of deepening and enriching teaching and learning programs.

Chapter 3, *Methodology*, investigates a number of methodologies that were used to investigate the hypothesis that information literacy is the nexus between accessing information and the creative acquisition of knowledge, and therefore the teaching of a structured information literacy program should be an educational imperative. Using qualitative analysis, research question one, which examines a teacher's perception of information literacy, will be investigated and an explanation of why this class of

methodologies was chosen. Postmodern and post-structural theories were used in the analysis of interview transcripts and this chapter will explain why these theories had particular relevance, especially in addressing an exploration of research two, which questioned what teachers discussed when engaged in curriculum reform. And finally, there will be consideration given to an examination of the practical considerations of this research; a discussion of facts that relate to how teachers who were interviewed regarded the importance of acquiring information literacy skills. This particular focus addresses an investigation into research question three that involves determining how, when and why teachers acquire information literacy skills, which implies determining the nature and context of their relationship with their school.

Chapter 4, *Results*, examines and analyses transcripts of interviews that were conducted with 23 teachers in seven primary school within the northern region of the Hobart Diocese. The intent of the analysis of interviews is to investigate the hypothesis that information literacy is the nexus between accessing information and the creative acquisition of knowledge and that the teaching of a structured information literacy program therefore, should be an educational imperative. The chapter draws on the structure that was used in the methodology chapter and the investigation of transcripts will be organised according to how the analysis reflects the following three research questions:

Chapter 5, *Conclusions*. This chapter relates to the hypothesis that information literacy is the nexus between accessing information and the creative acquisition of knowledge, and that the teaching of a structured information literacy program therefore, should be an educational imperative. This section will confirm that there has been an original contribution made in the literature in the field of information literacy by presenting findings and asserting associated

implications that relate explicitly to the following three research questions that have guided this thesis:

1 **What is a teacher's perception of the term 'information literacy'?**

2 **What do teachers discuss when engaged in curriculum reform especially in relation to information literacy?**

3 **How, when and why do teachers currently acquire information literacy skills?**

CHAPTER 2 RELEVANT CONCEPTUAL LITERATURE

...Oh...(pause)...well...(pause)..now I'm not really sure but is it (information literacy) to do with any bit of information that you gather, its all about what you gather, what you do with it, how you use it, where you get it from; its not just reading out of a book, its everything to do with information. Whatever I think, I think I nailed it? I got that question right? I don't think I teach information literacy; no I don't think to myself, 'information literacy, this is what I'm going to do'. I think it happens without me being aware of my teaching, it just happens without me being aware so I suppose it is implicit (Respondent 14, 2006).

2. Introduction and overview

This chapter will examine relevant research and literature that relates to the three research questions that were highlighted in chapter one and which are:

1	**What is a teacher's perception of the term 'information literacy'?**
2	**What do teachers discuss when engaged in curriculum reform especially in relation to information literacy?**
3	**How, when and why do teachers currently acquire information literacy skills?**

These questions guide the investigation of the hypothesis that information literacy is the nexus between accessing information and the creative acquisition of knowledge. This implies the need to incorporate the teaching of a structured information literacy program as an educational imperative. By examining the existing literature, the reader will understand that these three research questions present the thesis in the context of a teacher who is in the midst of curriculum reform and offers the teacher an opportunity to acknowledge and incorporate information literacy as a means of deepening and enriching teaching and learning programs.

2.1 Information literacy defined

Information literacy involve processes that imply the teaching and learning of "skills that lead to independent and student-centric learning, rather than reliance on the teacher to provide answers to questions or problems" (Mokhtar and Majid, 2005, p. 32). The process of information literacy is far more involved and complex than merely locating and using information to satisfy a class or school assessment task. As highlighted in an Australian Interim Coalition for Information Literacy Advocacy meeting held in November 2002 , there has been "quite a lot of discussion on whether learning is part of information literacy, or whether it is an added extra. Lots of people can locate and use information without learning

anything" (Costello, cited in Lupton, 2004). This section will briefly examine the etymology of the term, 'information literacy', and its possible influence on classroom practice with regards curriculum implementation in the primary school context.

2.1.1 Origins and history of information literacy

Most teachers who were interviewed in this study had not heard of the term until they read it on the reports that their schools were intending to issue in 2006. This is surprising given the importance of the skills inherent in the process and the argument that "information literacy is conceivably the foundation for learning in our contemporary environment of continuous change" (Bruce, 2002, p. 1). Although information literacy has primarily been associated with the library and the skills associated with library professionals, it has been the focus of many studies over many years with the originating concept of information literacy being generally attributed to Paul Zurkowski in 1974 (Spitzer, Eisenberg & Lowe 1998), who, as president of the Information Industry Association of America, used the term in a context that implied the use of information technologies in the engagement with information in a problem-solving manner. Over the course of a generation, the term has morphed and, not surprisingly, taken on a strong alignment with ICT, which has evolved simultaneously as an excellent means of accessing an overwhelming depth and range of information.

Early literature associated with information literacy, or related terms that include information behaviour or information seeking, include a variety of interpretations of the name. Case (2002) dismisses the phrase, preferring to use the expression, 'information seeking behaviour'. Wilson's (1981) early work in the area includes numerous mention of idioms such as 'information behaviour'. This phrase was still being used as the dominant term by Wilson (1999) in 1999 when the expression is described as "those behaviours a person may engage in when identifying needs for information, searching for such information in any way, and using

and transferring that information (p. 29)". The different interpretations and models that have been proposed by advocates such as, Kuhlthau (1991b), Bruce (1997), Wilson (1999), Limberg (1998, cited in Bruce, 2002) and Case (2002), may offer a healthy range of differing perspectives on this ever-evolving term. However, they all tend to agree on one very important aspect that is important to this study; information literacy has enormous educational potential and imperatives, especially in the light of a curriculum that allows teachers to design units that allow students a very real epistemological engagement. Until July 2007, the absence of a syllabus for Tasmanian teachers, could have provided opportunities for their students to create new knowledge by engaging in the information literacy process, which involves not merely accessing set texts in order to regurgitate 'essential facts', with little or no evidence of mastering the information environment. The new syllabuses produced by the Department of Education, Tasmania (2007a; 2007b) still allow for this teacher design that enhances rich information engagement.

From the outset of the use of the expression by Zurkowski in 1974, the term has been cherished and fostered by the library sector and interpreted and encouraged by government policy makers (Commonwealth of Australia, 1998; Commonwealth of Australia, 1999) who viewed information literacy as a "panacea to the imperatives of information saturation and increased competition in the global market economy" (Kapitzke, 2003, p. 56). Information literacy as a idiom may have initially been embraced by library personnel because its core is information engagement for a purpose and library staff have information engagement as a keystone in their fundamental role description. Nevertheless, almost forty years after being coined in the context of a business alignment to ensure prospective workers were exiting educational institutions with necessary life and work-related skills in information engagement strategies, confusion still surrounds the definition.

Information literacy's symbiotic relationship with ICT skills is being viewed by many, if not most teachers, as being the prevailing descriptor when contextualizing information literacy in the classroom (Branch, 2001). Godwin (2006) makes the point that there needs to be a competency in skills associated with basic computer literacy or fluency with computer applications in a student's effective engagement with information. Therefore, there is an obvious need to more clearly delineate ICT technical skills programs from information literacy programs. This is especially important given the extent of available authoritative online sources and "the assumption by academics that IT skills (using a computer and searching the Internet) somehow equip the student to be a competent information searcher still needs correction" (Godwin, 2006, p. 32).

2.1.2 Information literacy as 'site-specific'

It has been recognised formally since the mid 1980s that inquiring, investigating and using information from a variety of mediums in a number of ways are integral to establishing independence and resilience in engaging in lifelong learning, and that time is required to conduct information seeking and processing, with reference being made by classroom teachers to information experts if the information literacy skills are to be adequately developed (Primary school libraries and RFF in NSW: A position paper, 2002). Libraries have traditionally been viewed as the storehouse of information although the 'shift from books and buildings to bytes and bandwidth is literally and figuratively dismantling libraries" (Kapitzke, 2003, p. 63). The library's role as the nexus between information and knowledge formation has been established because a library is a very carefully organized and maintained collection of valuable resources (Henshaw, 1994, p.284). In the light of contemporary decentralization of school funding which allows for principals to be responsible for staff budgeting, which may result in the 'culling' of library staff in order to promote specialist staff in other areas such as music, dramatic

performance or physical education, Eisenberg calls for greater emphasis being given to libraries and the provision of specialist staff by stating:

> We don't realize as communities that if we spend all this money on information resources yet we don't have a person or program maintaining those resources, in three to five years from now, they'll be destroyed... The damage that can be done—the atrophy—can happen so quickly. Think about your own house. Imagine if for two years you didn't put anything away, or you didn't put it where it belongs. Librarians don't just shelve books. What they do is set up systems, organize, and make materials available. What's the most important thing on the Internet today? It's Google, a search engine. Who's the search engine for the world? It's the librarian and the library system. (Northwest Region Education Laboratory, 2002, ¶12).

The term, 'information literacy' is not and should not be solely attributed to 'library as place' and 'librarian as professional' (Seidi, 2006, p. 271), especially in the context of the many schools who do not have a librarian. Associating the teaching of information literacy only with trained library personnel, would indicate, therefore, that many schools would be without an information literacy program. To the uninitiated teacher involved in curriculum design, information literacy skills may be subsumed within the existing curriculum if the outcomes expected are to identify low order thinking skills, recalling facts and addressing specific questions (Bowler, Large and Rejskind, 2001). However, contemporary curriculum initiatives demand teachers allow for students to create a greater responsibility towards their own learning, which "helps them become dynamic learners and thinkers who are creative, analytical and efficient, instead of mere regurgitators of facts" (Mokhtar and Majid, 2005, p. 32).

2.1.3 Models of teaching information literacy

One of the earliest information literacy models was proposed by Eisenberg and Berkowitz (1990) in their *Big6* information skills frameworks that delineated information literacy as a sequence of related steps that involved:

1 Task definition

2 Creating information seeking strategies

3 Locating and accessing information

4 Using information, synthesizing information

5 Evaluating information.

Involving a set of sequences to scaffold the process gave the term a structure that was probably lacking at the time and a credibility to a process that was very much still a concept from the prospective of many teachers and librarians. Eisenberg (Northwest Regional Educational Laboratory, 2002) was one of the early proponents in establishing information literacy as a core study. Information literacy, although specific in its own right, needs the symbiotic relationship with other learning areas to be truly deep and transferable in its skill acquisition because the teaching of information literacy skills involves:

> A curriculum in the same way that English or math or social studies does. Of course, the information-skills curriculum does not stand alone—it is best learned when integrated with subject-area curriculum. A second important role is reading advocacy. Reading is the most fundamental and central skill. All of the research shows that if you can read well, you achieve at higher levels (Northwest Regional Educational Laboratory, 2002, ¶ 7).

Of the many information literacy programs used in a great many educational institutions, Bruce (2002) highlights the three most significant being: Eisenberg and Berkowitz' *Big6* information skills (Eisenberg & Berkowitz, 1990); Doyle's attributes of an information literate person (Doyle, 1992); and Bruce's seven faces of information literacy (Bruce, 1997),

which will be discussed in the next chapter. The models, in conjunction with the *Australian and New Zealand information literacy framework: Principles, standards and practice 2nd Edition* (Bundy, 2004a) and the nine *Information Literacy Standards* (American Library Association, 2004a), which will also be discussed in the next section, and the Tasmanian *Being information literate support materials* (Department of Education, Tasmania, 2006a) provide primary school teachers with frameworks from which they can design teaching and learning programs enhancing information literacy skills. These existing models and frameworks are invaluable in presenting to the teachers the qualities of information literacy; a term that to many remains unclear despite being intimately involved and successful in learning institutions for at least 15 years of formal education. Clearly, many processes subsumed within information literacy have already been mastered. but for many these processes that are intrinsic to being information literate need to be rearticulated from a teaching perspective and given a context in the curriculum.

Lupton (2004, p. 23) proposes various models that are specifically designed to provide an information literacy teaching and learning design for primary and secondary schools. These models complement documentation produced by state and territory education and training authorities in the area (Australian Capital Territory Department of Education & Training and Children's Youth & Family Services, 1997; Tasmania Department of Education, 2000; Ministry of Education and National Library of New Zealand, 2002; Victorian Department of Education & Training, 2003; Education Queensland, 2004; Department of Education Tasmania, 2004; Department of Education Tasmania, 2005), which all appear to accord with the Department of Education and Training, Western Australia's definition of information as being characterised as "Students recognise when and what information is needed, locate and obtain it from a range of sources and evaluate, use and share it with others" (Department of Education and Training, Western Australia, 1998, ¶1).

Big Six (Eisenberg & Berkowitz, 1990)	***Information Search Process*** (Kuhlthau, 1993)	***Information process.*** (ACT Department of Education, 1997)	***Research Cycle*** (McKenzie, 2000)	***Pathways to Knowledge*** (Pappas & Tepe, 2002)	***Info Zone*** (Pembina Trails School Division, 2007)
Task definition Information seeking strategie Location and access Use of information Synthesis Evaluation.	Task initiation Topic selection Prefocus exploration Focus formulatio Information collection Search closure	Defining Locating Selecting Organising Presenting Assessing	Questing Planning Gathering Sorting & sifting Synthesizing Evaluating Reporting	Appreciation Presearch Search Interpretation Communication Evaluation	Wondering Seeking Choosing Connecting Producing Judging

Table 3 Models of Information Literacy Instruction

Table 3 lists various models that have been developed for primary and secondary schools. Lupton (2004) refers to these models as *information process models* because they relate to the processes involved primarily in the searching for information and subsequently presenting the information with some degree of reflection. Although the models listed in Table 3 attempt to articulate the different perspectives of information literacy, the *Pathways To Knowledge* (Pappas & Tepe, 2002) model refers to "creating new knowledge rather than the emphasis in the other models on sythnesis and presentation of *information*... as such...it can be regarded as more closely related to information literacy than information seeking" (Lupton, 2002, p. 24).

Any student's information engagement should be premised by guidelines offered in Wiggins and McTighe's (2005) resource, *Understanding by Design.* This resource offers students the insights that information is organised, that there are many systems of organization and that once students comprehend and engage with the system of organization, they are empowered.

Offering insights into information formation and organization complements current curriculum development that is outcomes-based. Initiatives in curriculum, where outcomes-based learning is defined by students satisfying, or working towards satisfying key indicators, has obligated teachers to ensure they incorporate productive pedagogies. Such pedagogies include analytical reasoning and critical thinking, and are deemed crucial when engaging with information as it relates to forming knowledge. It is important, therefore, that teachers have an appreciation of various models of information literacy. This appreciation can be enhanced if teachers are then informed of the attributes associated with being information literate because attributes are aligned with the current inquiry-based, outcomes-based curriculum design paradigms that teachers currently frame their teaching and learning programs. The next section will elaborate on some information literacy attributes.

2.1.4 Attributes associated with information literacy

Information literacy involves not only acquiring skills but also being given opportunities to demonstrate the skills. Teachers have Doyle's (1992) attributes of information literacy to complement Eisenberg and Berkowitz' (1990) teaching structure to assist in evaluating whether the information literacy teaching and learning program that is being implemented is being confirmed by the students' engagements and results. Whilst Eisenberg and Berkowitz' (1990) model was primarily a pedagogical tool, Doyle's (1992) model established certain attributes as being indicative of an information literate person which include:

- Recognizes that accurate and complete information is the basis for intelligent decision-making
- Recognizes the need for information
- Formulates questions based on information needs
- Identifies potential sources of information
- Develops successful search strategies
- Accesses sources of information

- Evaluates information
- Organizes information
- Integrates new information into an existing body of knowledge
- Uses information in critical thinking and problem solving

(Doyle, 1992, p. 2)

If the implementation of information literacy skills program, as with any curriculum initiative, is not clearly articulated or comprehended by teachers then engagement by students and teachers will reflect this ambiguity (Buchanan, 2006, p. 55). Teachers should not expect to implement an information literacy teaching and learning program without providing what is considered as fundamental elements of the process, or modeling of various interpretations of the term. Coad (2002, p.30-31) synthesized a list of information fundamentals from a work perspective, which has been reduced and modified to apply to a school context and includes:

- Functional literacy (read, write and compute at a basic level).
- Reading and comprehension.
- Reasoning.
- Note taking.
- Summarizing.
- Formulating and asking questions such as *who, what, where, when, why, how* and *if.*
- Goal and objective setting.
- Identifying keywords and phrases.
- Being creative.
- Making comparisons.
- Integrating new information into existing body of knowledge.
- Persistence.
- Patience.

These 'fundamentals' can be viewed as a series of quite discrete attributes with some, such as patience and creativity, being more intrinsic and personality-oriented than others. However, for students to comprehend and personalize information and transform it to a new knowledge that they can then apply to different situations, the 'fundamentals' provide a series of indicators of attributes that the teacher needs to be aware of when developing a teaching and learning program that fosters information literacy. This need for a structure or simple model is further reinforced by research by Reid, Forrestal and Cook (1989) who developed a five stage model that included: Engagement; exploration; transformation; presentation; reflection. This model is complemented by the SCONUL Seven Pillars model (Society of College, National & University Libraries (SCONUL), 1999), which have the following skills as points of reference:

- Skill 1 Recognising an information need.
- Skill 2 Distinguishing sources and access.
- Skill 3 Constructing search strategies.
- Skill 4 Locating and accessing.
- Skill 5 Comparing and evaluating.
- Skill 6 Organising, applying and communicating.
- Skill 7 Synthesising and adding new knowledge.

2.1.5 The association with *literacy*

The term, 'literacy' is an ambiguous label that, although initially being defined as being able to objectively and fairly simply deconstruct symbols, is now involved in far deeper and broader constructs. Candy (2004, p. 79) argues that, "literacy is not a unitary idea, but rather a multi-dimensional construct, perhaps analogous to 'intelligence'". Such a definition allows educators and researchers the necessary scope to evaluate the complex nature of what it means to be truly literate in contemporary times where technology has come to redefine the term. There is no doubting the conclusion that being literate means to be able to effectively communicate and, aspects of communication are influenced by McLuhan's statement that, "the medium is the

message" (Levinson, 1999, p. 35). This chapter focuses on defining the term, information literacy, and examining the various factors that have and continue to influence a term that is, to many, both intangible and completely abstract. Being literate is subsumed in being information literate and it implies being able to articulate and comprehend in different information environments that rely on various forms of communication. Being literate, in the context of being 'information literate', is imperative if students are to become citizens who engage in an increasingly growing information base where, "poorly gathered information is often subjected to further mistreatment...where most decisions are based not on evidence but on taste: 'I like it. It sounds good'" (Egan, 2007, p. 238).

If the term 'literacy' is associated strongly with communication, usually aligned to reading, viewing and writing (Anstey & Bull, 1996), the question that this study intends to examine is why teachers usually respond to the term 'information literacy' as being involved strongly with ICT? Information literacy as a definable and teachable process needs to be accorded the same objectivity and tangible elements as other aspects of literacy, such as reading and writing and viewing and oral language (Bruce, 2002; Bundy, 2004a; Henri & Asselin, 2005). Information literacy is subsumed within the general term, 'functional literacy', which was originally used by the Organization for Economic Cooperation and Development in 1996 in defining the social purpose of the concept of 'literacy' to mean: "using printed and written communication to function in society in order to achieve one's goals, and to develop one's knowledge and potential" (cited in Andretta, 2005).

2.1.6 The association with ICT

There is research to suggest computer literacy is complementary to information literacy (Chambers & Tromp, 2002; Edwards & Bruce, 2002; Grassian & Kaplowitz, 2001; Masters, 2002; Reynolds, 2005). Schools and education departments are investing significant amounts of their budget toward ensuring the provision of electronic information is broad and

comprehensive in order to meet the increasing demands from the various interest groups (Oberg, Hay & Henri, 2000) and research supports the view that "to make effective use of the Internet for learning, children need both technical skills and other skills, which could be classified as cognitive" (Pritchard and Cartwright, 2004, p. 161). This section will examine the symbiotic relationship that has come to characterise ICT and information literacy, whilst elaborations on defining terms such as 'computer literacy' as a means of distinguishing it from being information literate will be undertaken in a later section.

Research by Moore (2002) and Oberman (1991) who, although conducting research a decade apart, both conclude that the online information environment and the technology that allows this access must be married to an information literacy program that allows competencies of information selection, accessing, evaluating and incorporating, to be developed and implemented. Integrating ICT into the curriculum offers previously unbelievably easy access to massive quantities of information. However, there is a need to invest in the provision of sufficient time and professional support to learn new skills and to incorporate new attitudes, enhancing opportunities to discuss, reflect and try new approaches (Cambone, 1995; Corcoran, 1995; Watts and Castle, 1993). An additional barrier to effective professional development is also the "absence of the conditions for effective, ongoing professional development built into the daily working lives of teachers" (Commonwealth Department of Education Science & Training, 2001, p. 73)

For many teachers, information literacy is a concept that is associated with ICT. Takahira, Ando and Sakamoto (2004, p. 114) define information literacy in its narrowest form as mainly meaning "the technique and ability to use computers or the Internet". Access to information via the Internet, which is now available in every school involved in this study, and in most classrooms in Tasmania, has made skill 3 of Eisenberg and Berkowitz' Big6 information

literacy model (1990), *locating and accessing information*, less site specific. Consequently, there is less reliance on a need to teach students various intricacies involved with engaging in a variety of information locations sited in the school library, the traditional location of information for primary school students. That is not to suggest that the physical collection and embodiment of knowledge that a library represents is to be completely dismissed because the role of the library as one site of organized, authoritative and accessible knowledge remains important. However, it is now incumbent on teachers to ensure students are familiar with the traditional organisation of knowledge that characterizes libraries and the methods of using the cataloguing structure that underpins this organisation, to locate and access information quickly and effectively and not rely solely on the one-stop shopping attitude which may be characterized by some as "lazy searching via Google" (Godwin, 2006, p. 34).

Teaching information literacy programs, by virtue of the intent being to engage with information sources independently and for a purpose, can be challenging. Teaching information literacy skills requires the implementation of a structured program and, at least initially, guidance from experts. This guidance becomes especially important when viewed in the context of the exigencies that many students and teachers associate with accessing information using ICT. Early, but extensive studies in students search strategies of the Internet concluded that primary school students in the higher grades who were uninformed of the processes associated with information literacy tended to print or copy and paste chunks of retrieved text rather than read and analyse screen text for relevance (Schacter, Chung & Dorr, 1998; Pritchard & Cartwright, 2004). These students also often misunderstand what they were reading or had located, but had not revised or reviewed their searches, often relying only on the titles rather than the abstract of the first page only of the results search (Thury, 1998). Studies by Hirsh (1999) confirmed the research by highlighting the fact that upper primary students failed to use search operators, such as Boolean operators or other features offered by the search engine, to

expand or modify their searches. Clearly, there exists a need for teachers in primary schools to have developed a teaching and learning program that ensures students are information literate prior to embarking on the independent information searching that tends to characterise the secondary studies.

2.1.7 A neglected critical literacy

This study does contend information literacy is *the* critical literacy of the early 21st century. However, in order to imply information literacy as *a* critical literacy, it is important to clarify and elaborate the term, *critical literacy.* Critical literacy is defined in a variety of ways, with Langford (2001, ¶7) claiming that "critical literacy has as many points of view as information literacy" with each dependent on any underlying theory. Any definition of critical literacy has intrinsic to it, a realisation that reading and involvement with information should be active and challenging (Moldern, 2007, p.51). Critical literacy demands the reader be aware that texts are usually not neutral and therefore, reading text needs to be couched in terms of endeavouring to ascertain the writer's purpose and motives. Being information literate implies that there is an understanding of the broad definition of critical literacy, which is defined as:

> ...the analysis and critique of the relationships among texts, language, power, social groups and social practices. It shows us ways of looking at written, visual, spoken, multimedia and performance texts to question and challenge the attitudes, values and beliefs that lie beneath the surface. Information literacy implies being critical investigators in any task that involves locating, accessing, retrieving and using information in a variety of mediums (Department of Education, Tasmania, School Education Division, 2007, ¶1).

Critical literacy and information literacy could rightly be described as offspring of the same parent: Critical thinking. Any discourse entered into by students in an information

engagement involves encountering an "intricate system of social, cultural, political and economic relations" (Gruber & Boreen, 2003, p. 5). Critical thinking accepts this perspective that literacy practices that are fundamental to information literacy skills are context-laden. Meyers (1986, p. 25) defines the term by listing the following attributes:

- Critical thinking is a learnable skill with teachers and peers serving as resources.
- Problems, questions, and issues serve as the source of motivation for the learner.
- Courses are assignment centred rather than text or lecture oriented.
- Goals, methods, and evaluation emphasise using content rather than simply acquiring it.
- Students need to formulate and justify their ideas in writing
- Students collaborate to learn and enhance their thinking

Research by Bruce (2000) and Limberg (2000) found quite different perspectives of information literacy. Bruce concludes that educators were primarily involved in information seeking, whilst Limberg's study, which involved Year 12 students, concluded that the students viewed information literacy rather narrowly and pragmatically as a means to end, rather than using knowledge to frame knowledge-creation by using critical analysis. Contemporary education expects teaching and learning to accord to inquiry-based and transformational learning, where the student is actively engaged in his or her learning (Department of Education, Tasmania, 2007a, p. 6). Implicit in such a pedagogy is the expectation that teachers plan explicitly to teach specific skills that are associated with, and intrinsic to, information literacy. Complementary to this pedagogy is the planning for opportunities in experiential learning; the learning of skills is but one phase of competency development with information engagement, with a dependency on reflection on experience and an application of skills to different contexts (Bruce, 2002).

Recent New Zealand research by Moore (2002) into the extent that information literacy has been incorporated into the New Zealand curriculum, parallels the Australian experience. In New

Zealand, information literacy has been promoted as an essential learning element with checklists that provide teachers with critical success outcomes (Ministry of Education and National Library of New Zealand, 2002). However, research by Moore (2002) concludes that more than half the teachers believed that information skills do not need to be explicitly taught. This impression by teachers that the skills intrinsic to being information literate are implied in the general manner of teaching contrasts sharply with research that concludes approximately seventy percent of the teachers were not able to identify, explain or account for any model of information literacy. This confirms this researcher's assumption that information literacy is a neglected critical literacy.

In a study of 30 Year 4/5 students at a government school who were involved in regular, explicit teaching and learning of information literacy skills that used the library to inform the process (locate the information source, skim to ensure the source was age and content appropriate, record information as keyword notes to address specific questions and then select addition sources), Foggett (2002) concluded that students were exhibiting strongly in the locating and selecting outcomes associated with information literacy. However, it is interesting and relevant to this section that the vast majority of students still required assistance from either the class teacher or from the teacher-librarian when they were engaging in the selecting and locating aspects of the program (Foggett, 2002, ¶ 25). Thus, despite a teaching and learning program that was very structured and taught by an informed professional teacher-librarian on a weekly basis, there was a need for the program to be extended in additional learning areas and contexts. The conclusions of the study are heartening for advocates of information literacy programs being integrated as explicit teaching and learning experiences, rather than incidental visits to information centres (libraries) or associated implicitly with 'computer time'. The students had obviously become very confident in understanding the concepts of selecting and locating information for a purpose with, "many of the actions noted providing further evidence

that at least a small percentage of the overall group were putting thoughts into action" (Foggett, 2002, ¶29), however, the conclusions reiterated the view that the teaching of information literacy needs a stronger emphasis.

Although there is a growing body of evidence that highlights the importance of directly incorporating information literacy initiatives into a school's curriculum (Cass, 2004; Coombs, 2005; Henri & Asselin, 2005), there is still much research that compels the argument that if information literacy is indeed a literacy, it appears to be a neglected literacy. Research undertaken by Whelan (2003, p.51) involved surveying 783 school librarians to determine the extent to which information literacy is being taught in K-12 schools, and indicated that 88 percent of respondents have information literacy standards in place at the school level. However, only 30 percent of teachers and 14 percent of students actually know what those skills entail. Furthermore, a recent OECD study on information literacy (Ramirez, 2003, p. 2) concluded that in most countries studied, the basic literacy skills for simple text comprehension, information identification, and information use to solve simple problems and formulate simple hypotheses, were "woefully inadequate". If school curriculum programs are planned to prepare students to exit with skills including life-long learning, information literacy appears to be a critical neglected literacy.

There are, however, examples of teachers incorporating information literacy into curriculum reform (Lewis, 2004). Although information literacy appears to be a neglected critical literacy, an expected outcome of this study will involve extrapolating the positive elements of such successful examples of information literacy implementation to the conclusions drawn from the analysis of the interviews conducted with the 23 participants of this study. This will facilitate informed recommendations regarding curriculum reform from a teacher

practitioner's perspective that promotes the explicit teaching of information literacy and presenting the associated skills as being part of a person's 'critical literacy'.

2.1.8 The Australian Information Literacy Standards

The establishment of information literacy standards will be critiqued in the context of how they support the notion of independent learners (Mayer, 1996; Stephenson, 1996). Such a critique will also reflect on the important, intrinsic role that information communication technology plays in the process (Johnson & Eisenberg, 1991; Mitchell, 1996; Mobley, 1996). An examination of various information literacy standards will assist in the investigation of research question one, which examines the teacher's perception of information literacy. It is important to provide critiques of existing information literacy frameworks that are associated with interpreting information literacy to align to the contexts that include tertiary education (Bruce, 1996; Candy, Crebert, & O'Leary, 1994; Dow & Geer, 1996; Wright & McGurk, 1996), and school communities (Cooper & Henderson, 1995; Henri, 1988).

There is evidence that standards of information literacy, as established by the American Library Association (ALA), the College of Australian University Libraries (CAUL) and the 2001 Australian Information Literacy Standards (Bundy, 2004a) are being used to establish and synergise information literacy practices (Brunner, October 6, 2005; Bundy, 2004b; Hobbs, November 2003; Marfleet & Dille, 2003). There is a need, however, for an evaluation of the definition and substance of information literacy being understood by teachers who create the curriculum when directed to the *Essential Learnings Frameworks 1* and *2* (Department of Education, Tasmania, 2002; 2003) and the *Tasmanian Curriculum Framework* (Department of Education, Tasmania, 2007). This need has become more apparent with the absence of specific reference to information literacy in the new *Tasmanian Curriculum Framework* (Department of Education, Tasmania, 2007), which is disappointing given the relative prominence in the

Essential Learnings Framework (Department of Education, Tasmania, 2003) and supplementary departmental information literacy documents (Department of Education, Tasmania; 2005, 2004, 2006b).

2.2 Computer literacy

One definition of computer literacy published by the Association of College and Research Libraries (2000) makes a distinction between computer literacy and computer fluency by associating computer literacy with routine and basic skills and awareness of hardware and software applications, whilst the term, 'fluency with technology' focuses on understanding the underlying concepts of technology and applying problem-solving and critical thinking using technology" (2000, p. 5). Computer literacy or 'fluency with technology', however it is defined or labelled, is primarily concerned with the technology itself. Even though the definition provided by the Association of College and Research Libraries (2000) contends fluency of technology with some higher order thinking skills, it is different from information literacy in that it does not provide an "intellectual framework" (2000, p. 23). The provision of ICT and related training in the applications of respective hardware and software applications is acceptable and expected in schools today, but, if by extension there is the belief that ICT provision leads to information literacy, then the assumption becomes terribly hollow. This shallow appreciation of the skills associated with being information literate is especially apparent if the "intellectual capabilities involved in using information" (Bruce, 2002, p. 2) is not distinguished from the training of the ICT applications.

By rephrasing the term, 'computer literacy' with the term, 'computer fluency', which entails the intellectual engagement or pedagogical alignment of available ICT, teachers may be more enticed into the marriage of information literacy and ICT. For example, the incorporation of interactive whiteboards into some classrooms would ensure information literacy instruction is

reflected in daily classroom practice provided they are not used merely as expensive projector screens because studies (Jones, Peters & Shields, 2006) have found interactive whiteboards "to be highly motivating and learner centred when integrated innovatively. They offer a powerful facility for integrating media elements into teaching to enhance content and support collaborative learning". Computer fluency tends to convey an engagement with ICT that is conducive to classroom practice, and satisfies the research that learning is most favourable when it involves an active engagement by the students as part of an unambiguous, daily classroom practice and process (Philipp & Schmidt, 2004). Proponents of information literacy who 'evangelise' the processes intrinsic to skills development in information literacy, need to be sensitive when using loaded terminology such as computer literacy. There needs to be reference to existing successful classroom ICT engagements if the message of information literacy being a way of learning, rather than an additional curriculum construct, is to accepted by a generally sceptical audience of busy teachers.

The *2001 Australian Information Literacy Standards* (Bundy, 2004a) assert that information technology, literacy or fluency requires more intellectual abilities than the software and hardware knowledge associated with computer literacy, but that the focus for many educators is still on the technology. To address research question one that examines a teacher's perspective of the term 'information literacy', this study investigated teachers' perceptions of information technology in the context of teachers expecting students to investigate information sources. This learning task has an information engagement focus, otherwise termed 'eLiteracy', and a key aspect of this research is an attempt to discern how this grasp of eLiteracy defines a teacher's engagement with information literacy. There is a belief that eLiteracy, however it is defined, should be conceptualised within an information literacy framework, not apart from it (Bundy, 2003).

Although being conducted eight years ago, the Australian Bureau of Statistics study, *Real time: Computers, change and schooling* (1999) demonstrated disparities in students' ICT skills, according to school type, size, sector, location and income area, and according to students' gender, cultural background and ethnicity. The study showed high levels of computer use outside school (85% of all students) with 50% of students using a computer outside school every day or almost every day. Clearly, the home was the context for the acquisition of greater competency in advanced ICT skills because the study concluded that "although a substantial minority of students developed their advanced skills at school, most acquired them at home" (*Real time; computers, change and schooling*, 1999, ¶ 14). An extrapolation of some of the conclusions from this study was used in structuring an interview framework that engaged teachers in an authentic discourse that reflected their information literacy experience.

A careful balance is required that harmonises the students' engagement in an online information environment with a teacher's concerns for the students' engagement to be independent and procedural, unhampered by technical constraint or issues related to functionality of the ICT. Teachers may be conditioned through past experience with the failure of the technical aspect of ICT or their own diminished level of self-efficacy with ICT due to a lack of professional development or expertise with the technical aspects to exhibit, "the mechanical rather than the cognitive" (Hartmann, cited in Pritchard & Cartwright, 2004, p. 159). This leads the teacher and children to concentrate more on technical problems at the expense of a deeper engagement with the information itself. Computer literacy can or should, therefore, be viewed as but one of many interrelated literacies that are required by students today.

Many schools have constructed policies related to computers and information and communication technologies that are intended to provide a teaching and learning base for their particular school community (White, Taylor & Au, 2002). These policies are designed to

provide the philosophical structure for the engagement by staff and students and the wider school community in the educational applications of ICT. Such policies are guided by an impressive raft of visionary documents produced by the education authorities in every state and territory (Department of Education Tasmania, 2004; Education Queensland, 2004; Victorian Department of Education & Training, 2003, Department of Education and Training, Western Australia, 1998), all of which present information literacy as an integral, albeit indiscrete, component of curriculum planning in Tasmanian schools. The *White paper: 21st century literacy in a convergent media world,* (21st Century Literacy Summit 2002) recognizes four key literacies that contribute toward being a literate person in the 21st century. These key literacies are defined as: information literacy; computer literacy; media creativity; and social competence and responsibility. The task for educators is to use existing models, school-based policies and standards related to information literacy to get beyond the conceptualizing of these attributes in order to frame curriculum inquiries that foster and enhance a general 'literacy' or communication with a dynamic information environment.

2.2.1 An illusion of progress: Critics of whole scale ICT implementation

The scenario is typical of any Tasmanian primary school. A prospective parent has completed an interview with the principal and, as a matter of course or courtesy there is the obligatory school tour. There is no need for an empirical study to confirm the fact that ICT and the resources, services and facilities that are subsumed in the term, will be a priority on the school-promotion agenda and walking tour. The physical infrastructure that ICT presents itself as to even the most casual observer who wanders the corridors of most primary schools in Tasmania, is both impressive and intimidating. Impressive in that the technology is usually located in humming, busy computer laboratories, filled with impressive gadgetry and apparently being interacted independently by active and engaged students. Intimidating because, to the uninitiated, such technology and learning spaces are only relatively new

additions to the school environment and certainly not an infrastructure element when the parents of even the kindergarten children were at school.

With the growing budget toward the provision and maintenance of ICT there has been a similarly diminishing of budgeting, especially in the provision of personnel, in the traditional provision of information services that were located in the school library. ICT has enormous potential to enhance educational change. By facilitating omnipresent information access it will continue to transform traditional information 'gateways' such as libraries. However, teachers too have often viewed themselves as such gateways through the selection of what they deem essential information and providing a narrow, yet hopefully relevant access to information sources that are credible, authoritative and relevant to knowledge formation. The notion of teachers as being the font of all wisdom appears be a residual ideology and the incorporation of instant information gratification via the Internet is only compounding this demise of teacher information authority. Eisenberg (Northern Regional Education Laboratory, 2002, ¶20) hypothesises a future with the possibility of even more intellectual demise when he makes the conjecture that:

> 10 years from now, we will not be walking into libraries that have a bank of computers. Everyone will be walking around with a device of some kind—it could be a hand-held, a tablet, a built-in computer in the furniture. I think we'll finally get over the hump of ubiquitous access and mass storage so that it's easier to use outside resources than a textbook—and cheaper. And then, everything begins to change. Education will change fundamentally from a teacher center to a learner center... Without someone helping on the information side, imparting knowledge has got to be even harder. Schools without libraries or librarians cut off their arms, cut off their brains. It's like a lobotomy in a way.

ICT infrastructure, together with a well designed information literacy program, will equip students with the higher order critical thinking skills that are essential when engaging in any information medium, let alone one as complex and ever-changing as the online environment (Lankshear, Peters & Knobel, 2000, p. 29). Teachers are expected to report on ICT and schools are obliged to create a curriculum that reflects the *Statements of Learning for Information and Communication Technologies (ICT)* (Curriculum Corporation, 2006b). One would assume, therefore, that teachers are skilled in the integration of ICT in their individual class teaching and learning programs and that students engagement with ICT is of a pleasing standard according to established outcomes and is being enhanced by the class programs. However, Stern's (cited in Andretta, 2005) survey of university students, which one would assume would have higher order skill levels than primary school students, highlighted the fact that one third of the respondents were unable to evaluate an Internet source's reliability and quality.

Although published in 1997, the results of Weil and Rosen's 16-year-long research study of what they term, 'computerphobia', have relevance to this research study. The 1997 research concluded that age/experience and gender made no difference to a teacher's confidence in using ICT. An added dimension to a teacher's engagement with online information was provided by Schaffner (2001), who concluded younger teachers, those 'belonging' to the Generation Y (born after 1984) believe that research is really quite easy because the Internet makes so much information readily available, allowing access at any time and from the comfort of one's own home. However, as found by Grimes and Boenig (2001), the positive attitudes expressed by these Generation Y teachers toward ICT and their overestimated perception of their own abilities, can hinder their attainment of information literacy skills.

Armstrong and Casement (2001) are two critics of ICT innovation and integration into school settings and they have raised a number of questions regarding the public perceptions of education being couched in the context of ICT initiatives that may give the illusion of progress rather than the reality of a reform that many educators have yet to grasp. Their critique of educational technology and schools is worthy of appraisal and will provide an interesting comparison to the many departmental initiatives and reports by vested interests such as Apple (2004) that are totally accepting of ICT in the school curriculum. Investigating this aspect of information communication technology is useful in addressing whether a practitioner's own issues with computer literacy, temper his or her interpretation of information literacy, which helps address research question one of this thesis relating to a teacher's perception of the term 'information literacy'.

Direct instruction has a specific place in any teaching and learning program (Sweller, 1999). Research undertaken into concerns held by teachers with regards their students inappropriate use of the Internet, regardless of the efforts to provide websites and/or a clear focus for research, highlights the need for teachers to provide a level of structure in the online environment that many are unable to fulfil due to their diminished self-efficacy with online searching techniques (Hammond & Mumtaz, 2001; Pritchard & Cartwright, 2004). There is a fear by some critics of whole-scale integration of ICT that an over-reliance on computers and the Internet is misplaced if the objective is to radically and dramatically enhance student achievement in key learning areas. This complements research by Fuchs and Woessmann (2004, p. 24) who claim that,

> Students perform significantly worse if they have computers at home. This may reflect the fact that computers at home may actually distract students from learning, both because learning with the help of computers may not be the most efficient way of learning and because computers can be used for

other aims than learning. This complements and corroborates the finding by Angrist and Lavy (2002) that computer availability in the classroom does not seem to advance student performance.

Research undertaken by Selinger (2001), Grant (2202) and Bowler, Large and Rejskind (2001) with regards children's online searching reinforces the need for teachers to use an information literacy model to support any information engagement as it pertains to the Internet if the exercise is to produce quality work that relates to new knowledge formation. The statement that "it is a relatively easy task to teach information literacy, but it is more challenging to teach information literacy effectively" (Mokhtar & Majib, 2005, p. 46) would echo true for the teaching of most process-oriented skills. However, given the scope of modelling, structure and research into the educational and lifelong learning benefits of implementing an information literacy teaching and learning program in schools and the apparent lack of actual programs being implemented in schools, there remains an imperative among school leaders to ensure a framework is implemented that would suit the school. The unfortunate reality for most students, with regard being offered a learning environment that reflects a sound and substantive information literacy framework, is reflected in Selinger's research that found:

> Much Internet activity consists of unstructured searches, ill-defined tasks, and children's work, which consists of text and images cut and pasted into a report. Questioning children about their reports in these situations often reveals no evidence of understanding or learning (Selinger, 2001, p. 101).

ICT has a role in contemporary curricula and opponents of this integration can tend to focus on negative elements of this innovation at the expense of the benefits to student engagement with information. Armstrong and Casement (2002) deem the incorporation of ICT into all

elements of the curriculum as being detrimental to student learning for many reasons: The financial obligations that are associated with the commitment to ensure the technology is purchased, maintained and functioning effectively are obvious; then there are the self-efficacy issues of teachers who are gradually coming to terms with the presence and importance of ICT in the curriculum, especially in the context of state government expectation that no student in Tasmania will exit Year 10 with a certificate if they do not prove capable of basic and functional computer skills. However, arguably, the most significant weakness in the arguments of those who oppose ICT integration is their lack of appreciation of the fact that ICT, when viewed as a mechanism to enhance information literacy engagements, offer "learning opportunities that not only make use of information and communication infrastructures, but are designed to bring the information practices, that are effective in professional, civic and personal life, into the curriculum." (Bruce, 2002, p. 1). Clearly, ICT has a role that is intrinsic to the teaching, learning and lifelong application of skills associated with information literacy and to dismiss ICT as an effective tool in this regard is to seriously compromise the integrity of any information literacy initiative.

2.3 The Essential Learnings Framework

This section will examine the literature related to the Tasmanian curriculum initiative known as the *Essential Learnings Framework* (Department of Education, Tasmania, 2002; 2003). At the time of data collection and for much of the research into the literature related to this framework, *Essential Learnings* (Department of Education, Tasmania, 2002; 2003) was the prime curriculum initiative that guided curriculum delivery in the state education system, with the Hobart Catholic Diocese ensuring all Tasmanian Catholic schools reflected best practice through their own interpretation of the framework. Although the Catholic schools in this study also referred to mainland curriculum documents to design school-based curriculum documents, the *Essential Learnings Framework* (Department of Education, Tasmania, 2002;

2003) provided a strong and constant reference point for school-based curriculum design. Since July 2007, however, the Department of Education, Tasmania, has released a new *Tasmanian Curriculum: English – Literacy K-10 Syllabus and Support Materials* (Department of Education, Tasmania, 2007a) for teachers to refer to in curriculum design. The *Essential Learnings Framework* (Department of Education, Tasmania, 2002; 2003) continues to provide a philosophical framework for the ongoing reforms to the Tasmanian curriculum.

2.3.1 The origins and history of the Essential Learnings Framework

Since 2002, Tasmanian schools have been involved with the implementation of an *Essential Learnings Framework* that

> ... consist of a statement of values and purposes, a description of the learning that is recognised as essential, and a set of principles to guide educational practice...focuses attention on what is central to the curriculum. (Department of Education, Tasmania, 2002 p. 4).

Five *essentials* provide the scaffolding for this innovation: *Communicating; Personal futures; Thinking; World futures; Social responsibility* (Department of Education, Tasmania, 2002; 2003). Information literacy is a key element outcome of the *Communicating* essential learning (Department of Education, Tasmania, 2004) and this thesis reports on investigations into the teaching of information literacy in Tasmania by primary school teachers who interpret documents that guide the incorporation of information literacy skills into their planning of a curriculum.

The Tasmanian Department of Education has invested enormous energy into realigning the Tasmanian public education system, which saw the implementation of a new curriculum framework known as the *Essential Learnings Framework* (Department of Education,

Tasmania, 2002) launched in all K-10 public schools in 2002. Although this study investigates how primary school teachers in Catholic schools create curriculum documents that enable students to become information literate, it is important for the integrity of this research to understand the curriculum reforms that were being undertaken in the state system because Catholic primary schools were expected to implement 'best practice', which involved implementing aspects of the Essential Learnings Framework (Department of Education, Tasmania, 2002; 2003). Several schools in the study were associated strongly as 'ELS schools', which implied school staff were involved in professional development in *Essential Learnings* (Department of Education, Tasmania, 2002; 2003). School-based curriculum in every Catholic primary school was expected to incorporate language and methodology that was subsumed in this curriculum reform. *Essential Leanings* (Department of Education, Tasmania, 2002; 2003), therefore, was not a curriculum innovation divorced from the design of teaching and learning programs found in Catholic primary schools, with every respondent involved in this study being able to articulate a clear understanding of ELS and how their teaching was influenced by the framework.

This curriculum initiative was a huge paradigm shift for Tasmanian educators and reflected the state government's initiative to develop a 20-year social, environmental and economic plan that was based on community consultation and expressed in the visions and goals associated with the government's strategic policy document, *Tasmania Together* (2007). The influence on education of this reform process was the publication of *Learning together: A vision for education, training and information into the 21st century* (Tasmania Department of Education, 2000), the premise of which is the transforming of Tasmania's education system. The document presented five goals for the realisation of long-term and transformative change, however, goals 2 and 4 are most relevant to this thesis because they focus on facilitating "enriching and fulfilling learning opportunities that enable people to work

effectively and participate in society" and supporting an "information-rich community with access to global and local resources so that everyone has the opportunity to participate in, and contribute to, a healthy democracy and prosperous society" (Watt, 1999, p. 7).

Consultation - Values and Purposes of Education	2000
Values and Purposes Statement	December 2000
Learning Together	2001
Co-construction of Essential Learnings Framework 1	2001
Project Schools	2001
Project Schools	2002
New Essential Learnings for Consultation	2001-March 2002
Launch of Essential Learnings Framework 1	March 2002
Project Schools	2003
Outcomes Development	2002-2004
Launch of Essential Learnings Framework 2	March 2003
Launch of Learning, Teaching and Assessment Guide	April 2003
Launch of Essential Connections: A Guide to Young Children's Learning	March 2004

Table 4 Key Milestones in the Curriculum Consultation, 2000-2005 (Department of Education Tasmania, 2006B).

This thesis's research focused on the recognition of information literacy as a key element outcome that is mandated to be included in curriculum planning using the Tasmania curriculum reform as the context. Influencing this study is the dramatic extent of curriculum reform proposed by the incorporation of the *Essential Learnings Framework* (Department of Education, Tasmania, 2002; 2003) as indicated by former State Education Minister, Paula Wriedt who states "besides Queensland, where some attempt at individualised learning is under way, no other mainland state education department has undertaken such a personally styled education system" (Bantick, 2005, p. 32). Until the *Learning Together* (Tasmania

Department of Education, 2000) initiative, Tasmania has had a history of staggered and generally inconsistent curriculum reform that was characterised by a lack of resolve to provide a structured curriculum (Phillips, 1985). Thus, the backdrop of conservative curriculum reform and a lack of common school curriculum may certainly have had an influence of the implementation of the *Essential Learnings* curriculum framework (Department of Education, Tasmania, 2002; 2003), and until this curriculum framework was published, Tasmanian teachers had no reference point to information literacy in any curriculum document. This proposed paradigm shift in teaching and learning in Tasmania, however, comes amidst a media coverage that is generally not supportive of the reform and includes critics such as Dr Kevin Donnelly, the author of the Department of Education, Science and Training report titled, *Benchmarking Primary School Curriculum* (Donnelly, 2005). According to an article in the national newspaper, *The Australian*, Dr Donnelly regarded Tasmania's *Essential Learnings* curriculum framework (Department of Education, Tasmania, 2002; 2003) as "the worst primary school education system in Australia" (Maiden, 2005, p. 1).

The view contended by Donnelly (2005) is contrary with the perspective of *Essential Learnings* (Department of Education, Tasmania, 2002; 2003) held by the Professor of Education at the University of South Australia, Alan Reid, who stated "a new approach to national curriculum collaboration would do well to start with an analysis of the Tasmanian model" (cited in Watt, 2006, p. 33). Reid's model as outlined in his research fellowship titled, *Rethinking National Curriculum Collaboration: Towards an Australian Curriculum* (Reid, 2005) calls for a national curriculum based on students working to attain capabilities, with teachers devising teaching and learning programs that develop the capabilities relating to the distinct disciplines that pertain to knowledge, content and skills associated with the distinct key learning areas. The *Essential Learnings* curriculum framework (Department of Education, Tasmania, 2002; 2003) certainly reflected an outcomes-based approach, however,

it did not reflect or emerge from a system or structure that was already rich in content or syllabuses. Therefore, for many teachers and members of the school community, the framework failed to accomplish transformation of the curriculum, which may have been exacerbated by the "lack of involvement in the conceptualisation phase (which) leads teachers to either ignore, or shape the reform to fit existing paradigms" (Watt, 2006, p. 33)

After enduring months of public condemnation regarding many aspects of *Essential Learnings* (Department of Education, Tasmania, 2002; 2003) that claimed the framework was 'vague and meaningless" (Kearney, 2006, p 4) , and with teachers being "drowned in a bureaucratic, cumbersome and confusing curriculum regime that destroyed the joys of teaching"(Donnelly, 2006, p. 17), the Tasmanian state government is in the final stages of drafting the Tasmanian Curriculum Framework (Department of Education, 2007). Comprising seven new syllabuses covering Mathematics, Science, English , Literacy, Arts, History and Information Technology, the new Tasmanian curriculum intends to 'harmonize' the 'best of the *Essential Learnings Framework* with a stronger subject-specific curriculum, which arose as a result of a call from many in the school community for a change from "the jargon-rich and confusing ELs" (Duncan, 2006, p. 1). In the light of much research into apparent defects in the *Essential Learnings* curriculum framework (Department of Education, Tasmania, 2002; 2003) that included, "limited evidence of academic rigour, detail, clarity, and ease of measurement" (Watt, 2006, p. 35), the *Essential Learnings Framework* is justifiably being reassessed. However, this reassessment may have negative implications for the promulgation of information literacy programs because, unlike the Essential Learnings curriculum framework (Department of Education, Tasmania, 2002; 2003), information literacy as an explicit reference for teachers in their curriculum design, is found no-where in the emerging Tasmanian Curriculum

2.4 Australian education authorities: Recent curriculum reform

Intrinsic to the effective teaching and learning programs that engage students in information literacy is a recognition of the values inherent in outcomes-based education. If any curriculum is to transform students' lives, then it needs to equip them with skills that are outcomes-based and, therefore, easily transferable to different scenarios, rather than rely on stock-standard replies to a litany of content-rich questions. Some critics of outcomes-based education would have taken much heart from debate that ensued regarding the recent controversies that challenged education ministers in Tasmania and Western Australia. Western Australian Education Minister, Ljiljanna Ravlich and Tasmanian Education Minister, Paula Wriedt, were two ministers who were advocating outcomes-based curriculum reform and both were replaced in their portfolios (Donnelly, 2006, p. 17). Against the backdrop of accusations by Prime Minister John Howard and Commonwealth Education Minister Julie Bishop of falling standards especially in the teaching of Literacy and the teaching of History (Bantick, 2006, p. 29), the debate regarding a national curriculum has reached a level that, to the casual and uninformed viewer, is approaching the level of interest usually reserved for sporting interests.

The commonwealth Labour government under Prime Minister Paul Keating introduced standards and outcomes, the purpose of which was to attempt an approach toward a national curriculum. The nationally developed statements and profiles were published for the key learning areas such as English (*English: A curriculum profile for Australian schools*, 1994), Technology (*Technology: A curriculum profile for Australian schools*, 1994) and Studies Of Society and Environments (*Studies of society and environment: A curriculum profile for Australian schools,* 1994), however the initiative was voluntary. Some states such as Queensland and NSW did create syllabuses that reflected the outcomes-based approach that was presented as the ideal in creating a curriculum that would allow each school a degree of

flexibility in creating teaching and learning programs that would satisfy their students' needs, although state education ministers refused to endorse the national curriculum (Donnelly, 2007, p. 26). The state-based curricula that reflected outcomes and standards also generated associated documents relating to information literacy (Australian Capital Territory Department of Education & Training and Children's Youth & Family Services, 1997; Bundy, 1997; Department of Education and Training, Western Australia, 1998; Commonwealth of Australia, 1999; Department of Education, Tasmania, 2004; Education Queensland, 2004). Information literacy, therefore, is closely associated with outcomes-based educational innovation that has characterised Australian curriculum reform over the past 20 years and movement to statements of learning needs to reflect the work that has been done in the area of explaining the role and influence of information literacy by education authorities.

More recently, the commonwealth and state and territory governments have embarked upon a focus on aligning all education authorities toward the implementation of statements of learning (Curriculum Corporation, 2006a) in key learning areas of English, Mathematics, Civics and Citizenship, Science, and Information and Communication Technologies. These statements of Learning, however, relate only to years 3, 5, 7 and 9, and schools are required to integrate and incorporate the statements into their curriculum before January 2008. Critics, such as Kevin Donnelly, claim that these statements, "are not much practical use to teachers...again and again, research suggests that what teachers need are clear, concise and unambiguous syllabuses, or road maps, of what they are expected to teach" (Donnelly, 2007, p. 27).

Donnelly is a strong and vocal advocate for a national curriculum that is characterised by uniformity of syllabuses, with student progress being monitored and reported upon through constant testing that reflects a system that is more accountable to all stakeholders (Marshall,

2005). He has the support of Don Watson, former speechwriter for former Prime-Minister, Paul Keating. Dr Watson is quoted in the Canberra Times (Bellamy, 2006) as stating "I think the curriculum was severely buggered up by a lot of state governments, Liberal and Labour, in the '80's and it just hasn't got any better since" (Bellamy, 2006, p. 2). Such vocal, influential critics of existing curriculum reforms may influence the direction of current and future curriculum reform, with the effect that information literacy, viewed by some as an intangible conceptual process (Donnelly, 2006; Duncan, 2006), is relegated an insignificant role in any curriculum that may, instead, emphasise content-rich retrieval, rather than teaching process-rich pedagogies that aim to facilitate students arriving at outcomes and standards.

It is important to examine curriculum reform that has emerged from national and state authorities to ascertain the extent that teachers interpret and implement change. This provides a focus in addressing the hypothesis of this thesis that states that information literacy is a set of processes that need to be learned as part of a structured program because it alludes to the need to teach for coherency in order for the child to be able to deliberately use the skills. Five of the seven schools included in this study, although being indicative of the schools that make up the 27 schools that comprise the Catholic primary school sector in the Hobart Diocese, are relatively small. There is evidence from studies undertaken in England (Bell & Sigsworth, 1987; Cole, 1989; Vulliamy, 1997; Galton, Hargreaves and Comber, 1998; Webb & Vulliamy, 1999), supported by studies of moderate to small schools in other countries (Bray, 1987) that this small school ethos acts as insulation against government directives. The size of the school and whether it has connotations with regards to interpretation and implementation of curriculum reform will be a research emphasis to be analysed in further detail in chapter 4.

2.4.1 The Tasmanian Curriculum

After two years of experiencing adverse media coverage, coupled with a disillusioned rank and file, the Department of Education, Tasmania, was intent on a reappraisal of the *Essential Learnings Framework* (Department of Education, Tasmania, 2003) with the new Tasmania curriculum planned to be published for referral by teachers for the beginning of 2008. The various statements of learning in key learning areas identified key elements that the commonwealth government had mandated for inclusion in all state and territory curriculum documents. The *Tasmanian Curriculum English-Literacy K-10 syllabus and support materials* (Department of Education, Tasmania, 2007a) that was produced in July 2007 appears to be an attempt to both marry the best philosophical aspects of the *Essential Learnings Framework* (Department of Education, Tasmania, 2003) with the commonwealth's obligatory various statements of learning in key learning areas, although it reads like a series of standards. The organization of teaching and learning is explained in the new syllabus as a scope and sequence of learning opportunities that are made up of five standards, with three stages within each standard, therefore consisting of 15 stages in total from Kindergarten to Year 10 (Department of Education, Tasmania, 2007a, p. 13). The core content comprise five strands:

- Reading and viewing.
- Writing and representing.
- Speaking and listening.
- Thinking.
- Using ICT.

(Department of Education, Tasmania, 2007a, p. 8)

It was assumed by this researcher that the new *Tasmanian Curriculum English-Literacy K-10 syllabus and support materials* (Department of Education, Tasmania, 2007a), launched in

July 2007, would be the logical syllabus that would make explicit reference to information literacy. This assumption is based on the unambiguous and broad scope given to information literacy in the *Communicating* element of the *Essential Learnings Framework* (Department of Education, Tasmania, 2003). This explicit reference in the *Essential Learnings Framework* (Department of Education, Tasmania, 2003) that guided teachers in constructing teaching and learning programs that relate to information literacy, was supplemented by the publication in June 2006 of the 61 page document *Being information literate support materials* (Department of Education, Tasmania, 2006). It appeared, therefore, that the Department of Education, Tasmania's attention in ensuring this important aspect of rich learning would be embedded in the new curriculum that was being developed early in 2007. However, there is no explicit reference to information literacy or being information literate in the Tasmanian Curriculum English-Literacy K-10 syllabus and support materials (Department of Education, Tasmania, 2007a).

Instead of providing explicit detail for teachers in defining and outlining strategies for teaching information literacy, the new *Tasmanian Curriculum English-Literacy K-10 syllabus and support materials* (Department of Education, Tasmania, 2007a) outlines the five core content strands (See figure 1) in a broad and fairly ambiguous way. As part of the *Thinking* core content strand there is reference to information literate skills such as students being able to "process and evaluate information, explore perceptions and possibilities, create new knowledge, reflect on their learning and evaluate their thinking" (Department of Education, Tasmania, 2007a, p. 8). Similarly, in the *Using ICT* strand there is mention of students learning to "access, interpret and evaluate ideas, information and issues" (Department of Education, Tasmania, 2007a, p. 8). However, these references to skills intrinsic to being information literate are not included in the more detailed organization of the scope and sequences that elaborate the core content strands of *Reading and viewing, Writing and*

representing and *Speaking and listening*. In the light of the explicit structure offered to teachers in the *Essential Learnings* Framework and other supplementary materials (Department of Education, Tasmania, 2004; 2005; 2006) that dealt explicitly with being information literate, the new Tasmanian Curriculum English-Literacy K-10 syllabus and support materials (Department of Education, Tasmania, 2007a) is a disappointing curriculum initiative. With the Tasmanian Catholic Education Office undecided about the direction it wants for its schools with regards embracing either the Western Australian *First Steps* literacy program, the NSW English Syllabus or the Tasmanian Curriculum, Teachers in Tasmanian Catholic primary schools are intimately involved in the debate surrounding curriculum initiatives.

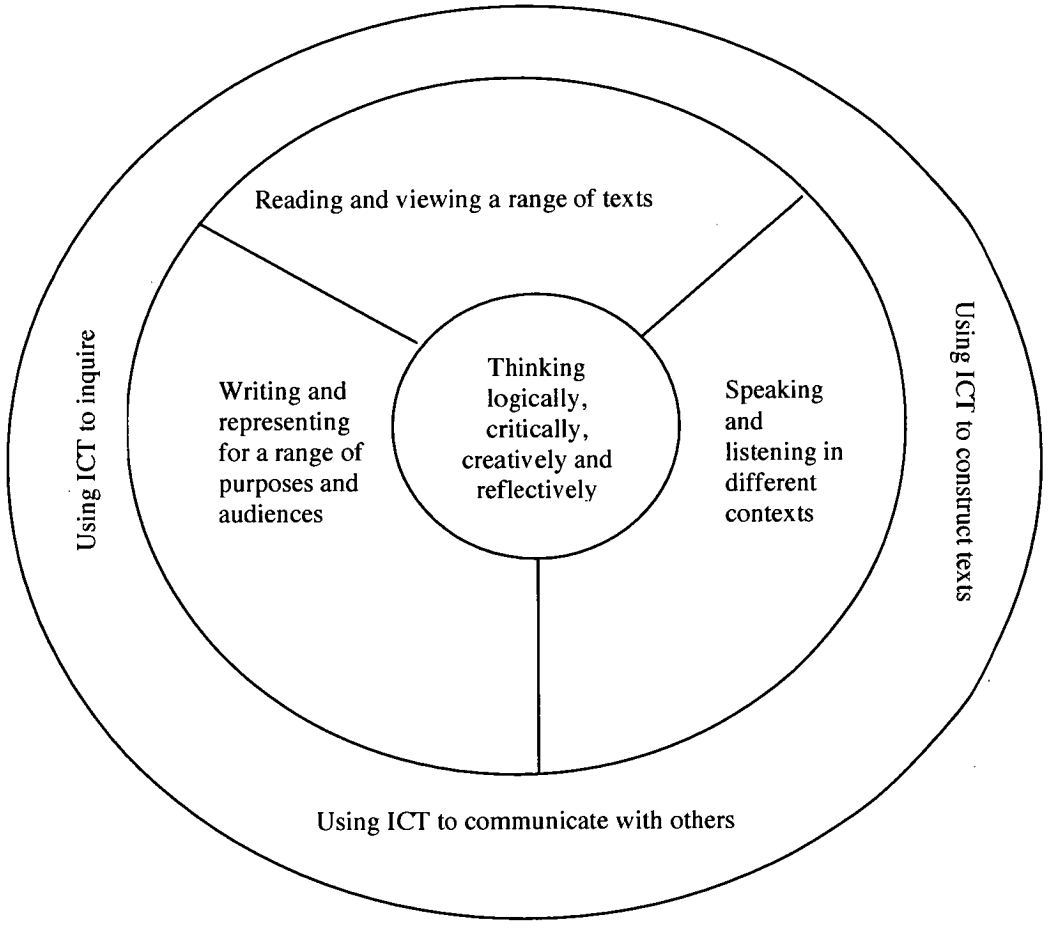

Figure 1 Core content in the English-literacy curriculum
(Tasmanian Curriculum English-Literacy K-10 syllabus and support materials (Department of Education, Tasmania, 2007a, p.8)

2.5 Teachers involved in curriculum reform

The notion of 'all things old being new again' is a nemesis for curriculum reform. When examining any implication involved in curriculum reform relating to implementing information literacy in a perspective that teachers understand it as a way of learning, there are a number of challenges to the successful execution of the initiative. An obstacle in implementing any innovation is convincing teachers that the modification of their practice and the subsequent design of teaching and learning programs are mutually beneficial and 'cost-effective' (Stonach & Morris, 1994). Teachers need to be assured that learning is enhanced and students more engaged, which is supported by research that confirms the stresses and confrontation that ensues from most curriculum reform (Ben-Peretz, 1990; Remillard, 2000).

The second obstacle to reform is the "hurdle of changing how much we expect students to learn (because) in a process approach, content is no longer paramount, but rather the ability to learn" (Bruce, 2002, p.6). To some teachers, any curriculum reform that erodes content contradicts their personal strength of content mastery, which results in acute distress as they perceive their strength or teaching persona being compromised by external influences. Further exacerbating this obstacle to successful curriculum reform as it relates to embracing information literacy is the strong association of the term to ICT. ICT implies a learning engagement that has connotations with inefficient use of time, failure of resources and/or facilities that are not conducive to learning (Armstrong & Casement, 2001; Donnelly, 2007). This section will examine the reform process in which teachers engage, with specific regard to information literacy implementation, using the aforementioned obstacles as guides to an investigation of the curriculum reform process.

Drake and Sherin's (2006) work on curriculum adaptation and practicing change in the context of specific key learning reform refers to the term, 'Sensemaking', which has applications to this study because it provides the insight into personal elements experienced by teachers that can be extrapolated to any curriculum reform. Their study concluded that, "teachers must make sense of it (reform) in the context of their existing teaching and learning practices...which is situated in their identities as learners and teachers" (Drake & Sherin, 2006, p. 157). Therefore, if a teacher has not been exposed to a structured information literacy program, if they have not experienced learning using information literacy principles or processes, if they cannot identify with the underlying premise of information literacy which implies making a personal and deep engagement with information in order to create new understandings and new knowledge, then the teacher's likelihood of successful implementation is low because it does not accord with the teacher's identity as both learner and educator.

There is evidence to suggest for curriculum reform to be effective, it needs to align an informed teacher base toward goals that are both manageable and attainable (Webb & Vulliamy, 1999, p. 238). Curriculum reform needs to allow for the rich diversity of teaching personnel to conform to a philosophical framework that can be incorporated into teaching and learning programs, yet also allow for individual differences. This ideal is expressed by a teacher interviewed in an English study of curriculum reform who stated:

> If you want to work in a certain way, it comes from the heart. And what suits me may not necessarily suit my colleague...I think what is important here is a teacher's own identity – what you should do should come from inside you. It should be genuine and the school's curriculum should be flexible to give space for different personalities because, in my opinion, difference is a source of great richness (Webb & Vulliamy, 1999, p. 240).

2.5.1 Implementation theory

In Australia, as with other developed nations over the last 10 or 15 years, research related to curriculum change has evolved by Implementation theorists such as Nias, Southworth and Campbell (1992), Hargreaves (1997) and Goodson (2000). They argue that the centre-periphery models of curriculum change, which were dominant in the 1960s, failed to recognise the complexity of the implementation process, with research by Carless (1997, p.1) stating "educational innovations have rarely lived up to the expectations of their proponents and have often been reshaped, adopted half-heartedly, ignored or rejected. The difficulty of successfully implementing innovations and the complexity of the change process are now widely acknowledged". Those involved in the reform process rarely initiate curriculum change as a process rather than an event without implementation adaptation. Implementation theorists view change as a process rather than an event, arguing that curriculum changes are rarely implemented as originally intended but rather undergo a process of `mutual adaptation' (Berman & McLaughlin, 1977).

Implementation theorists such as Fullan (1990) have become very influential because such theories present change as being procedural and the understanding is that teachers, being part of the change process, have more input and authority with concomitant reform. However, there is a degree of contention regarding some aspects of implementation by theorists, some of whom would argue that wider sociopolitical factors are more important in determining whether or not particular educational innovations succeed or fail. Thus, for example, Papagiannis (cited in Vulliamy, Kimonen, Nevalainen and Webb, 1997) suggested that only those reforms which support the status quo will succeed and that the mode of implementation is irrelevant. Such a viewpoint has gained greater strength in England since the 1988 Education Reform Act, which for the first time attempted to bring about curriculum change statutorily by legislating for the introduction of a National Curriculum (Vulliamy, Kimonen, Nevalainen and Webb, 1997). This is similar to the current debate regarding possible

implementation of a national curriculum for Australian states and territories (Donnelly, 2007, January 27). Research into the implementation of the British National Curriculum in its early phases suggested that it is naive to suggest that through legislation the education authority responsible for the provision of curriculum can control the school curriculum, with Ball, Bowe and Gold (1992, p. 114) arguing that owing to the interpretation of the orders at the national, local and school levels the National Curriculum is "not so much being 'implemented' in schools as being 'recreated', not so much 'reproduced' as 'produced'".

Teachers, when confronted by the demands that are inherent with curriculum reform, are likely to evaluate the worth of the reform by the value it would add to their workplace, their classroom, their students' results and their status as effective teachers as perceived by their community. Several aspects have been identified by Coad (2002) that relate to the effectiveness or failure of information engagement strategies in the workplace that can be extrapolated to the school situation and these include whether the time for investigation is available, the resource needs for a sufficient information investigation, the perceived value of the outcome and perhaps most pressing for classroom primary teachers, the reliability, variety, number and nature of the sources.

2.5.2 Communities of Practice?: Curriculum planning in Catholic Schools within the Hobart Diocese: An overview of school-based praxis

Jean Lave and Etienne Wenger created the term 'community of practice' (Lewin, 2004, p. 180) in 1991 as a means of exploring the notion of situated learning within a particular domain of social practice. By definition, a community of practice "will potentially be a supportive community in which 'apprentices' could engage in legitimate peripheral participation" (Lewin, p. 181). It is important, however, to allow for the broader definition that reflects the tensions of real rather than idealised workplaces. The workplace helps create and support the professional identity of any teacher and a teacher's professional identity is

strongly influenced by their personal context (Drake & Sherin, 2007), which implies, in this study, a teacher's personal experience with information literacy to create knowledge.

Teaching implies partnership, and partnerships are based on a number of factors including open and honest dialogue, recognition of a common goal and respect for the experience and expertise that each partner can bring to the relationship (Senge, 1990; Hattie, 2003). Bruce (2002, p. 8) identifies five areas of partnership that enhance success when considering the successful implementation of any initiative such as the incorporation of an information literacy program, with these areas being: curriculum design, policy development, staff development, research, and classroom teaching. This section will examine the extent that systemic structure is evident to ensure school-based praxis both encourages and establishes the environment for the initiation of information literacy programs in Catholic schools that comprised the study, and by extension, Catholic schools within the Hobart Diocese, which includes all Catholic schools in Tasmania.

Evidence by Drake and Sherin (2006) highlight the point that for curriculum reform to succeed it must be accompanied by a supportive structure that guides any required curriculum or pedagogical practice and maintains the integrity of teaching to satisfy required and expected curriculum outcomes. In the context of teacher self-efficacy in curriculum delivery, let alone curriculum reform, research by Australian National University Academics, Andrew Leigh and Chris Ryan (Donnelly, 2006, p. 18), suggests that "teacher quality, as reflected by the academic aptitude of beginning teachers, has fallen". When viewed in the context of initiating information literacy teaching and learning programs as a subtle, yet discrete part of a broader curriculum reform that characterised the *Essential Learnings Framework*, these concerns are magnified. Further to these concerns regarding minimal collaborative practice is the evidence from curriculum reform in England and Finland. Here, the paternalistic and

autocratic style of curriculum delivery, usually driven by principals or curriculum officers, became a residual 'ideology', with the emerging ideology becoming characterised by "an ideal type...whereby all teachers should participate actively in negotiating an agreed curriculum and contribute jointly to planning, implementing and evaluating its delivery" (Vulliamy, Kimonen, Nevalainen & Webb, 1997, p. 112).

2.5.3 Teacher perception of and engagement in curriculum reform

Research undertaken by Ingvarson, Meiers & Beavis (2005) regarding professional development lends support to the value of effective professional development, especially with curriculum design; such research will assist in investigating research question two that examines what teachers discuss when engaged in curriculum reform, and is implicitly associated with the concept of communities of practice. An examination of relevant literature highlights how school has increasingly become the focus for teacher professional development and "school leaders are maximizing teacher learning through restructuring time and meeting structures to create additional opportunities for collegial work within the school day" (Manning, 2005; Owen, 2005. The impact on teacher engagement with the reform process of prolonging a typical teaching day may have negative aspects because there is research from England that implies the ideals of collegiality are being replaced by `contrived collegiality' (Hargreaves, 1994). By increasingly top-down and directive managerial approaches, there is a tendency for curriculum reform to be viewed skeptically and be embraced half-heartedly if at all, rather than be discussed on its merits, which is expressed quite poignantly in the research by Webb and Vulliamy, (1996) who state:

> All forms of responding to curriculum change induces stress to some degree. However, retreatism probably causes the most teacher stress and anxiety because it involves submitting to imposed changes without any changes in professional ideology (Webb & Vulliamy, 1996, p. 250).

This view, that there is a body external to the school and somewhat divorced from the reality of the classroom, a 'they' impost on school-based curriculum delivery, is supported by research by Stenhouse (Stenhouse, Rudduck, & Hopkins, 1985). A reading of such research supports the contention that "change is a process and not an event" (Fullan, 1985, p. 396). The evidence of curriculum change in small to moderate schools (Vulliamy, Kimonen, Nevalainen & Webb, 1997), however, seeks some modification of Fullan's view in that change may in fact need to be characterized by an 'event', such as the introduction of an obligatory curriculum implementation that characterized the introduction of the *Essential Learnings Framework* in Tasmania. This supports Stenhouse's (cited in Rudduck and Hopkins, 1985) claim that there can be no curriculum development without a prior change in teacher's values. The conclusion, therefore, suggests that, as a result of experiencing imposed changes in practice, some teachers will question previously held assumptions and change their beliefs; this has important correlations with this study in that information literacy needs to be embedded in a curriculum reform if many teachers are to implement teaching and learning programs that facilitate students becoming information literate.

2.5.4 Teacher beliefs

Information literacy is a confused element of the curriculum with teachers aligning the term strongly with ICT rather than as information engagement. Consequently, to effect change, any initiative or implementation of information literacy in the curriculum needs to be seen by teachers to enhance student learning and take into account the teachers' learning and teaching requirements (Ball & Cohen, 1996; Davis & Krajcik, 2005). To discuss information literacy reform is somewhat presumptuous because it implies that information literacy is currently an intrinsic element of a typical teacher's planning and can be explicitly viewed in his or her teaching and learning programs. Instead this section will endeavour to highlight the exigencies that surround a teacher's understanding of the implementation of reforms that affect existing

pedagogical and curriculum practices because evidence by Craig (2001) suggests that teachers are 'critical agents' in their own learning, especially engaging in an understanding of reforms, and any incorporation of initiatives.

Klein (1997) claims that a demonstration of any teacher's epistemological beliefs is expressed through a teacher's professional knowledge. This professional knowledge, or their pedagogical content knowledge (Shulman, 1987) implies that a teacher's belief about the knowledge component of their role as a teacher is often translated into their classroom practice. Bandura's (1997) self-efficacy concept has relevance to curriculum reform from the perspective of a teacher's perception of their own ability to implement reform, which is often tempered or influenced by the teacher's positive and negative past experience. Therefore, there is truth in the statement by Key (2005) that "teachers' beliefs need to be taken into consideration in the reform process...the teacher must be motivated to change...asking the question: 'Why should I change my teaching practice?'". Unfortunately, in many curriculum reform processes due respect is not accorded to motivating the teacher to understand that personal change is part of the curriculum change and research by Fetters, Czerniak, Fish and Shawberry (2002) conclude that most teachers resist or ignore the change or reform process.

Research by Spillane (cited in Drane & Sherin, 2006) into curriculum reform highlights the point that an important variable in ensuring the success of any curriculum reform centres on the teachers' beliefs about their students. Jones and Moreland (2005) highlights the point that a teacher's formative interactions with his or her students increased the level of both student and teacher capacity to engage in teaching and learning programs and much of this formative interaction appeared to reflect a teacher's high pedagogical content knowledge. For information literacy to be either an instigator or benefactor of curriculum reform, it is apparent that teachers need to develop enhanced levels of conceptual and procedural knowledge, which is then

revealed in a teacher's planning to enhance more purposeful interactions with information sources that culminate in achieving specific learning outcomes, especially when using technology (Harlen & James, 1997).

Curriculum has been an issue in the lives of the teachers interviewed in this study and the responses tended to reflect a sense of the need for action, if not urgency, by employing bodies in their responsibility to provide unambiguous curriculum guidelines for schools and teachers. Teachers in this study feel there is a need to refer to a curriculum that would be applied state-wide, with comparable expectations with other states. Many teachers, whilst appreciating the fact that information literacy is not a new concept, nor is it an add-on to an already crowded curriculum, view it as a curriculum reform: an impost and "most reform efforts fail to understand the depth, range and complexity of what teachers do." (Bascia & Hargreaves, 2000, p. 4). In any situation where teachers are challenged to reflect on their current practice in the light of impending, obligatory curriculum reform, Drake and Sherin (2006) found that they engaged in three processes – read, evaluate and adapt – with the process involving both adapting the curriculum and pedagogy to suit their particular teaching and learning style and constraints or variables that include school resources, student learning styles and available time.

2.5.5 Professional development

Research by Owston (2007) and Wong (2006) in curriculum reform concluded that for any classroom innovation to be truly embraced and implemented by teachers, the teachers must have an unequivocal appreciation of the perceived value of the innovation, complemented by a supportive teacher professional development, internal and external recognition and principal approval. Studies by Kise (2006) reiterate how difficult it can be for teachers to be involved in any change process even when they are convinced it is worth the effort. For meaningful change to occur and be implemented, consideration must be accorded a teacher's

beliefs, feelings and personality; teachers are not to be expected to change without clear explanations or evidence of how the changes will benefit them or their students.

Barnett (2003) aspires to the belief that professional development is effective if it is perceived by teachers to be creating something real and usable. The professional development in information literacy for Tasmanian Catholic schools was incidental in that it has not offered explicit direction for teachers on the definition of the term or the various models of teaching information literacy or how it complements current teaching practice. There are, however, mechanisms that currently exist in the system that would allow for the enhanced teacher learning of information literacy. Referring to the key insights for sustaining whole school change offered by Scalfino (2002, p. 5), the opportunities for teacher learning and the related positive embrace of curriculum innovation already exist in the four areas identified by Scalfino's study, which include:

- Curriculum renewal; focusing on an understanding of the constructivist theory of learning.
- Teaching method; focusing on productive pedagogies that engage in whole-brain learning (O'Brien & White, 2001).
- Professional development; focusing on teachers developing reflective teaching practices
- Improved student learning; focusing on monitoring student learning to inform practice.
- School ethos; focusing on developing a culture that supports life-long learning

In some circumstances educational change may be impeded by the inability of teachers to identify and express, through their own interpretation of the curriculum reform, the pedagogical approach that the change enacts. Buchanan (2006, p. 55) concluded that there was significant difficulty in the introduction of a religious education initiative because the former curriculum was couched in an outcomes-based educational model, whereas the newer curriculum was text-

based without a context or curriculum framework. This aspect of teachers being confronted by change that is challenging to established practice as reflected in a teacher's preferred pedagogy supports research by Drake and Sherin (2006) who, whilst focusing on the effects of curriculum reform on mathematics' teachers, suggests that teachers need to be critical agents of change in any reform process. Becoming a critical agent of change implies a degree of learning on behalf of teachers and professional development offers learning that is collaborative and reform focused which reflects the research that correlates the "reciprocal relationship between individual and organisational development" (Commonwealth Department of Education, Science & Training, 2001 p.19).

2.5.6 The role and perception of the library and the role of library staff

The literature that surrounds the teaching of information literacy programs is conclusive in its recognition of the library being, up to recently, the situation most associated with information literacy, and library professionals being the principal educators. Neely (2006, p. 2) states as a sound summary "ensuring students are information literate and prepared for lifelong learning is, and has long been a key priority for the profession of librarianship". However, information literacy involves participants experiencing information engagement in a variety of contexts and is not focused on the development of discipline specific skills or a reliance on information experts such as librarians or teacher-librarians. Rather, it involves a way of learning that implies finding meaning using information sources that is subsumed in the daily pedagogical practice that supports a teaching and learning program (Kuhlthau, 1991b).

A number of studies have confirmed the influence and importance of library personnel in the teaching and learning of information literacy skills that are then viewed as

instrumental in enhanced achievement (Bingham, 1994; Lance, 1994; Oberg, 2001). Lonsdale's (2003) research confirms the important role that teacher-librarians play in higher student achievement and enhanced self-esteem and confidence with their learning, yet the number of teacher-librarians in Tasmanian schools declined by almost 50% between 1996 and 2000 (Lonsdale, 2003, p. 5). These were the years immediately prior to the introduction of the *Essential Learnings Framework*, which resulted in enormous new demands on teachers to incorporate information literacy as a means to authenticate the new framework. To many teachers, the library remains the focus for the development of information literacy programs, although as argued by Kapitzke (2003), the traditional notion of a library as a repository of information needs to be redefined to align with the nodal or hub-like description, which empowers both library staff and library client.

The school library continues to play an important role in providing student access to information and a teacher's role continues to focus on providing students with learning opportunities in knowledge and skill acquisition. There is no doubt that ICT has revolutionised the provision of information. Teacher-librarians, library staff and teachers who provide library time as part of their curriculum - which included every teacher in every school that was sampled in this study - need to appreciate the new role that is associated with information access that is traditionally subsumed in a library staff member's role description; that being 'information manager'.

Schools are investing in ICT and information provision via ICT. There are, however, concerns that the full potential of both ICT and information access is being compromised by a lack of clearly defined responsibility for information management, especially given the influence of ICT in this delivery of information systems and resources. Eisenberg (Northwest Regional Education Laboratory, 2002) defines this role in the following statement:

> In the old days, when there wasn't a whole lot of different information infrastructure in schools, it meant pretty much maintaining the central library, the books and magazines. But today, it's our computer networks. It's the information lifeblood of the school. And as we move from textbooks to resource-based learning, that becomes increasingly important. Who's going to do that? It's not necessarily going to be the computer teacher, whose expertise is really helping kids learn about applications. It's the information manager, who is the librarian (Eisenberg, Northwest Regional Education Laboratory, 2002, ¶ 8).

2.6 Knowledge formation

Over one hundred years ago it was far too easy and too tempting for 'knowledge-producers' to define the boundaries of knowledge. This self-assurance verged on an arrogance of one's mastery of existing knowledge and is exemplified by the following statement by the Vice-Chancellor of Oxford University and Master of Balliol College, Benjamin Jowett, who apparently regularly told his students:

> I am the master, my name is Jowett
>
> If it's knowledge then I know it.
>
> I am the master of the college
>
> What I don't know isn't knowledge.
>
> (OECD, 1996, p. 15)

Intrinsic, to this research will be how teachers perceive the construction of knowledge. Lave (cited in Chaiklin, 1996, p. 8) states that "knowledge always undergoes construction and transformation in use", which is an important assertion to temper the interview analysis with participants in the examination of the interpretation that the participants have of information literacy as a nexus between information and knowledge formation. The learning approach that some may argue best describes

information literacy is task-oriented and implies a relationship between the student and a task that results in change or "widening of our ways of seeing the world (and) can be understood in terms of discernment, simultaneity and variation" (Bowden & Martin, 1998, p. 8). This idea of knowledge being conceptualised, given a context and, therefore, able to be refuted and depending on one's perspective is reinforced by a number of statements made by various respondents, regardless of teaching experience, school location and grade taught.

With the current expectation of a common national curriculum being a key focus for not only rhetorical debate but also for possible implementation, the knowledge component of the curriculum may align strongly to be fundamentally prescriptive. Teaching, for some, will become 'safer' as education becomes far more standardized than it currently exists. McGregor's (2005) notion of students' managing knowledge as opposed to teachers being involved in knowledge management is supported by the postmodern view held by Jarvis, Holford and Griffon (2003, p.11) who state in relation to curriculum reform and the presentation of knowledge therein, that "by the 1990's, it was generally recognized that these efforts had failed and that there is just too much knowledge to get into every curriculum...the idea of curriculum is therefore now of limited value". This perspective will be used to complement the aspect of investigation related to question two of this thesis, which intends examining what teachers discuss in the context of curriculum reform, as it has epistemological connotations that, although not explicit, are subsumed to this question.

Bereiter and Scardamalia (cited in Wells, 1999, p. 86) explore the idea of 'knowledge telling', which implies moving information without an active engagement "which results in information for reproduction rather than being transformed through purposeful knowledge building". Being information literate implies being able to interpret, analyse and synthesis

information (Department of Education, Tasmania, 2006a), which expects far more than mere 'knowledge telling'. Bruce (1997), in her conclusion to an important study discussing information literacy with 60 higher educators from eight Australian universities suggests that an aim of information literacy should be the use of information wisely for the benefit of others and implies:

> The knowledge base of wise information users is supplemented by values, attitudes and beliefs that they are explicitly aware of and that they affirm in their use of information on a day-to-day basis (Bruce, 1997, p. 151).

The teaching of information literacy does imply the teacher being prepared to be a risk-taker in regards to knowledge creation tasks. Information literacy requires the student to investigate knowledge formation, often from a personal perspective. There is, therefore, a risk with this engagement in higher order thinking as expressed by the statement that "when students engage in the construction of knowledge an element of uncertainty is introduced into the instructional process and this makes instructional outcomes not always predictable" (State of Queensland, Department of Education, 2001, p. 24). The fifth skill in the SCONUL *Seven Pillars Model of Information Literacy* (Society of College, National & University Libraries (SCONUL, 1999) expects the student to compare and evaluate information that has been located, accessed and selected. One reflection of a teacher's professional competency in developing teaching and learning programs is an emphasis on including opportunities for critical thinking, reasoning, comprehending and allowing students guided episodes that instil confidence in deductive and inferential reasoning. These skills must be supported by teaching and learning programs if proficiency is to be attained in this aspect of information literacy (Campbell, 2004; Terrell, 2004; Willis, 2005).

The Queensland School Reform Longitudinal Study (State of Queensland, Department of Education, 2001) clarifies the definition of productive pedagogies and its relationship to student performance measures in Table 5. All four dimensions noted in Table 5 elaborate on attributes that are intrinsic to the creation of teaching and learning programs that facilitate students becoming information literate. To qualify some terminology that is present in table 6 and relevant to this study, the nature of *Problematic knowledge*, involves:

> Students demonstrating an understanding of knowledge, not as a fixed body of information, but rather as being constructed, and hence subject to political, social and cultural influences and implications. This is opposed to students representing knowledge as facts or as a body of truth (State of Queensland, Department of Education, 2001, p. 19).

Dimensions	**Productive performance**	**Productive pedagogies**	**Productive assessment tasks**
Intellectual quality	Problematic knowledge Higher order thinking	Problematic knowledge	Problematic knowledge: Construction of knowledge. Problematic knowledge: consideration of alternatives.
	Depth of understanding	Higher order thinking	Higher order thinking
	Elaborated written communication	Depth of knowledge	Depth of knowledge: Disciplinary content.
		Depth of students' understanding	Depth of knowledge: Disciplinary processes.
		Substantive conversatio	Elaborated written communication.
		Metalanguage	Metalanguage
Connectedness	Connectedness to the world	Connectedness to the	Connectedness: problem

	beyond school.	world beyond the classroom.	connected to the world beyond the classroom.
		Knowledge integration	Knowledge integration
		Background knowledge	Link to background knowledge.
		Problem-based curriculum.	Problem-based curriculum
			Connectedness: Audience beyond schoo
			Students' direction.
Supportiveness		Students' direction	Explicit quality performance criteria.
		Explicit quality performance criteria.	
		Social support.	
		Academic engagement.	
		Student self-regulation	
Recognition of difference.	Cultural knowledges Responsible citizenship Transformative citizenship.	Cultural knowledges Active citizenship Narrative	Cultural knowledges Active citizenship Narrative

Table 5 Relationship between student performance measures and classroom practices: Pedagogies and assessment (State of Queensland, Department of Education, 2001, p. 20)

The term productive pedagogies has relevance to the teaching and learning programs that have been formulated and promulgated for the teaching of information literacy. Information literacy's premise is to empower the individual whereby the individual becomes more conscious of the origins and purposes of information, rather than merely being able to locate and select sources of information. The aim is to realise in the student a true capacity for

'higher order thinking', which is described as occurring "when students manipulate information and ideas which transform their meaning and implications" (State of Queensland, Department of Education, 2001, p. 18).

2.6.1 Children's potential for knowledge creation

Knowledge is not innate; rather it is the product of a process of construction and, like any change process, growth often develops in non-linear ways. Children in primary school are undergoing considerable growth in the awareness of information and its forms. Research asserts that regardless of the source of information, knowledge formation depends not only on the nature of evidence but also on the cognitive readiness of the person receiving it (Miller, Hardin & Montgomery, 2003, p. 328). The child's world, as Piaget would attest, is relational and a product of actions and reactions that are influenced by the child's physiological capacity for cognitive activity and that the "latent tendencies for development could be brought out by appropriate interaction with the environment" (Gardner, 1973, p. 59). Therefore, information literacy skills programs would be viewed as appropriate opportunities to equip the child in developing a sophisticated conception of knowledge formation in an information rich environment.

Vygotsky contended that children's conception of the world gradually becomes merged with the adult perception through the acquisition of thought processes that he referred to as either 'scientific' or 'everyday' concepts (Vygotsky, 1978). This view has direct applications to the hypothesis of this thesis that states that information literacy is a set of processes that need to be learned as part of a structured program because it alludes to the need to teach for coherency in order for the child to be able to deliberately use the skills. Vygotsky would contend that if teachers rely, rather, on incidental acquisition of information literacy skills, then these 'everyday concepts' are not explicitly taught and "in the mind of the child they do

not form a coherent, hierarchically ordered whole, and the child does not use them in a conscious, deliberate fashion" (Van der Veer, 1998, p. 90).

2.6.2 Knowledge as power

The association of knowledge with power was a keystone of many of Foucault's writings. The complexity and dynamism characteristic of knowledge formation or knowledge production was expressed by Foucault when he said of knowledge and its relationship with power that "it is the name that one attributes to a complex strategical situation in a particular society" (Foucault, 1978, p. 93). Knowledge-based occupations, such as teaching, must develop strategies to keep up with the pace of change in knowledge formation, whether that change is caused by the addition of new information or the reassessment of 'old' information and this is highlighted as early as 1926, when German sociologist, Max Scheler chronicled the way that "different types of knowledge change at different speeds, with technical knowledge changing more rapidly than religious knowledge etc" (Jarvis, Holford and Griffin, 2003, p. 8).

Foucault (1972) asserts that power is subsumed in all aspects of knowledge and that knowledge formation is a natural ascendency when attending to discourses. However, Rouse (cited in Gutting, 2003, p. 114) emphasises Foucault's interpretation of knowledge and power as being "historically specific and may vary significantly in different domains". Teachers are involved intimately with the act and craft of knowledge formation and the logical corollary to this is the expectation for teachers to be skilled in information literacy. However, this study has highlighted how challenging this term has been for the vast majority of teachers, curriculum leaders and principals which may reflect the teacher's understanding of the term, 'knowledge' as it relates to their context as an educator. Teachers have been confronted by the challenges inherent in being expected to create and implement a curriculum that needs to represent an 'essential' knowledge and skills base. It appears, however, that the dilemma for many teachers resides in the unanswerable question: "*What constitutes the core belief structure or system that*

we associate as knowledge?" Shulman (cited in Burbules, 1997, ¶9) contends that a teacher's content knowledge is more than an expertise or even a classroom specific familiarity with a key learning area; rather, it "involves understanding such knowledge from the standpoint of what it means to teach it".

Information as one of the building blocks to knowledge, can be contentious. Teachers have a responsibility to ensure students reach important curriculum benchmarks in achieving key developmentally appropriate curriculum standards as they apply to curriculum content. In states such as Tasmania where, until very recently, there has been an absence of any syllabus, teachers may feel even less inclined to allow students to engage in independent information engagement in creating new knowledge or critiquing existing knowledge sources on key topics associated with specific key learning areas. The following statement explains this challenge for educators who may not be information literate and, consequently, restrict their students' information engagement to narrow, prescriptive filtered sources:

> The search for information is often clouded by emotion...Because full, unambiguous information is seldom available, all decisions are at risk. In fact, there is no such thing as completely objective information. Information, especially in decision-making, is often filtered, clouded, and distorted by the decision maker. Objective information takes on a subjective cast. People providing others with information also have their filters. No wonder Ackoff (1974) called human problem solving, 'mess management'" (Egan, 2007, p. 237).

2.6.3 The role of library professionals in knowledge creation

Libraries and the professionals that staff them continue to be intrinsically linked to providing their clients with collections of, or access to information (Coatney, 2007; Buzzeo, 2006). Prevailing folklore maintained stereotypes of librarians who engendered fear and trepidation

among information seekers in reaction to the librarians' charge of being 'gatekeepers' of information (Breivik, 1998); custodians who were, and may still be, associated with trained efficiency in directing clients to sources that provide for their information needs. Library staff are obvious power brokers in knowledge formation (Doherty, 2007) and their role has undergone tremendous transformation as online sources make information non-site specific. From the perspective of some information seekers, there may no longer be a need of employing mediation with an information expert in the guise of a librarian. Teachers of information literacy need to be familiar with the techniques involved in the creation of knowledge using information literacy as the framework; the lack of teacher self-efficacy in this area of knowledge formation which undoubtedly impedes the teacher's ability to, "think along with them (students) in order to help find ways to respond to questions, doubts, confusions" (Burbules, 1997, ¶10).

2.6.4 Transience of knowledge.

It is appropriate to regard knowledge as dynamic and ever-changing, however, Lyotard's (1984) analysis of knowledge as a narrative allows the term to be values-free. Foucault's (1972) work in the area agrees with the changeable nature of knowledge, however, he frames the term as discourse and he emphasises that any discourse can never be values free because discourse promotes a perspective. Knowledge is not necessarily a set of given facts that need to be learned and repeated, regardless of context, person or circumstance (Wettersen, 2007). Knowledge has intrinsic to it a subjectivity that implies strength of purpose, rather than weakness in its intent. Knowledge is transitory in that it needs to be reanalysed and critiqued according to its original reference points of its own creation to validate its authority. There is also a need to appreciate that some information seekers increased learning of selected facts rather than a balance of facts (Maurer and Reinemann, 2006). Therefore, even though there can be substantial improvement in a person's learning, it was without a consequential or associated increase in one's knowledge. The concept of practical reasoning or 'phronesis' to give it its Greek term implies, "knowledge

is both the means and product of human activity; hence one always needs to interrogate a view of knowledge, or an approach to communicating it to others, in light of practices and relations it fosters" (Burbules, 1997, ¶11). This supports Foucault's discourse approach to the interpretation of the term 'knowledge' being associated with power, which is an important element in the post-structural investigation in chapter 4.

Teachers may need to reassess their own perspectives of 'truthful knowledge' when comprehending the assertion that being information literate is applicable given the context of knowledge creation using a student-centred approach to accessing a variety of information sources. And, just as knowledge removed from the reality of the times may be deemed frail or obsolete, then information literacy needs to imply a reflective practice or even a reflex action that contends a perspective that, "learning has changed from remembering 'facts' and 'knowledge' to seeking to understand and be critically aware of the things to be studied" (Jarvis, Holford and Griffin, 2003, p. 9). Certainly, there are 'truthful' teaching practices that reflect a student's developmental progress and any complementary teaching praxis recognises the need to include both core curricula and accompanying intrinsic foundational skills in the creation of teaching and learning programs.

Lankshear (2003, p.169) refers to the term 'digital epistemologies' to describe the contemporary phenomenon of producing and acquiring knowledge through the digital form. This perspective is certainly reinforced by the incorporation of the term, 'Googling' into the vernacular to mean locating information via simple keyword searching using *google.com* as the search engine, a search method that has been criticised as being not scholarly in that it is an example of 'quick and dirty searching" (Godwin, 2006, p. 30). Postmodern theories of language imply knowledge is being socially constructed, undergoing constant reappraisal as new information, new meanings and, subsequently, new interpretations come to light and are applied in context

(Foucault, 1972). Information literacy accepts and embraces technology in the context of knowledge creation and it appears to support the following statement regarding the important role played by ICT in knowledge creation:

> Emerging information technologies enable a shift from the transfer and assimilation of information to the creation, sharing, and mastery of knowledge...Knowledge mobilisation and use must itself mirror the types of shifts desired in educational practice, moving from passive assimilation of information to active construction of knowledge, so that the process is consistent with its content. (Dede, 2000, p. 1).

2.7 Learning theories of consequence in framing information literacy programs.

It is not the intent of this study to investigate the various learning theories that currently influence the construction of curriculum and the associated pedagogy. The following sections will examine, briefly, some learning approaches that are currently framing information literacy initiatives that view learning as a practice not an end or final consequence. However, it is recognised that a number of learning theories have influenced or could shape prospective information literacy programs. Such learning theories include the various learning style models as exemplified by the personality-based approaches that emerged as a result of work by Carl Gustav Jung, (1961) a proponent of examining how individuals deal with their world and whose proponents include Myers-Briggs' or Felder-Soloman (Zywno and Waalen, 2002) examples or Gardner's Multiple intelligences model (Gardner, 1983).

2.7.1 The influence of Bruce's 'personal knowledge base'

An important premise of this study is the exploration of the assumption that information literacy is critical to knowledge formation, especially in the creation of a personal knowledge base. This is simplified by Bruce's (1997) equation, "information seeking + critical analysis = personal

knowledge base" (1997, p. 138). Bruce proposed three pedagogical approaches in developing teaching and learning programs for information literacy and they are the behavioural, constructivist and relational methods. All three constructs are used to ground educational practice and, therefore, most teachers would be familiar with both the theory and implementation of the theories, perhaps favouring one over the others, but definitely using strategies in the usual course of the day, to ensure student learning is initiated, focused and maintained. The behaviourist and constructivist approaches are discussed in greater detail later in this chapter, however, in brief, the relational approach to learning information literacy, "essentially refers to the experiences that people encounter using information and the capacity to discern which forms of information literacy are applicable to different situations of need" (Mokhtar & Majid, 2005, p. 37).

If information literacy is viewed as being somewhat intangible and having quite an ambiguous definition for tertiary educators as highlighted by Bruce's (1997) seminal work, then clearly, there is need for further discourse with classroom practitioners in order for them to converse about their own experience of information literacy awareness and competency using the conceptual basis provided by Vygotsky's the zone of proximal development (Vygotsky, 1978).

2.7.2 Reference to Bloom's concept of 'mastery learning' and Mezirow's threefold distinction between types of learning

A definition of behaviourism, as "the analysis of observable behaviour" (Rowntree, 1981, p. 22) is appropriate to establish the framework that situates Bloom's interpretation of information literacy in which an information literate person needs to display key attributes that align with specific information investigative skills. The kernel of Bloom's concept of *Mastery Learning* and Vygotsky's interrelated concepts of scaffolding and zones of proximity are appropriate for this thesis in that "aptitude is the length of time it takes a person to learn, not how "bright" a

person is" (Mastery learning, 2002, ¶ 4). An analysis of discourse of the participants was structured to illuminate impediments to collaboration and a true sense of communities of practice as these impediments relate to an implementation of information literacy to curriculum planning undertaken by participants' schools.

Bloom's concept of *Mastery Learning* has strong inferences as to why and how information literacy should be integrated in a teacher's teaching and learning program. Mastery learning can offer insights into effectively designing an information literacy program because the premise of mastery learning relies on material to be learned, to be "broken down into small units and instructional objectives are clearly specified." (Grassian & Kaplowitz, 2001, p. 39). The concept promotes the view that a student's learning can be enhanced provided they are clear about the intent of any exercise and the skills required to meet any goal of any exercise and is typical of other behaviourists, such as John Broadus Watson (1878-1958) and Burrhus Fredric Skinner (1904-1990), in that people respond according to a stimulus-response model; the implication for teaching being that a reinforcement of desirable behaviour and a dismissal or deliberate ignoring of undesirable behaviour will cause a sought-after change in a learner's behaviour (Smith, 1999). An appreciation of Bruce's (1997) equation, "information seeking + critical analysis = personal knowledge base" (1997, p. 138) would complement the behaviourist aspect of acknowledging 'the self' in any learning exercise, especially if the program was part of a procedure that was clearly and easily delineated for the learner.

The external environment, and its associated artefacts and stimulus, have importance in behaviourism and effective teaching, including the incorporation of information literacy. Teaching information literacy skills would be intrinsic to any teacher's

program that expects a student to eventually engage independently and effectively with an information-rich environment. However, for many teachers who are daily faced with recalcitrant or 'willing but unable' learners, Bloom's ideal of assisting all students to a level of mastery in most things is an idealistic and wasteful enterprise.

Mezirow (1991) identified three distinct types of learning and named them: instrumental, communicative and emancipatory. This structure provides an excellent guide for this research in that it is possible, as a researcher, to differentiate each respondent based on how they relate to each of these definitions. For example, issues with aspects related to instrumental learning, which involves "determining cause-effect relationships and learning through task-oriented problem solving" (Mezirow, 1991, p. 73) would become evident easily in the interview as teachers relate their personal experience with the expectations they set for their students in engaging with information using ICT, which could be a contributing causal factor as to why information literacy may not be a priority in any teacher's teaching and learning program if their perceived level of ICT competence is low.

Similarly, the communicative aspect promoted by Meizrow (1991, p. 75), which implies that we all strive to both want to be understood and to understand one another, is a crucial attribute of teaching. It would be appropriate to extrapolate this to assume teachers would feel very comfortable in an environment that relies on ensuring communication is clear and comprehensive. Interviews should allow the researcher to ascertain whether the term, 'information literacy' has been communicated well to teachers. The final process of inquiry, emancipatory learning, has special interest to this study because it involves, "identifying and challenging distorted meaning perspectives" (Mezirow, 1991, p. 87), which implies teachers need to display a willingness and competency in having an unambiguous interpretation of

information literacy, or the skills involved in investigating the meaning and intent, especially in the context of being obligated to report on the term.

2.7.3 Constructivism

The constructivist approach advanced by Jerome Bruner and influenced by Piaget and Dewey (Costa, 2001, p. 145), focuses on "information processing and memory or recall of information" (Mokhtar & Majid, 2005, p. 37). This approach to teaching and learning has a strong influence on information literacy skill attainment because it argues that, "learning is an active process in which new ideas are constructed based on prior or current knowledge" (Kearsley, 1994, ¶16). Information literacy needs to have structure to allow the teacher to establish conditions for learning to occur and for students to acknowledge that a structure exists that is procedural and allows for a more effective engagement in an information rich world. Constructivism asserts that it is the student's desire for understanding that is central to learning, however, this understanding is engaged when the subject uses as many of the senses as possible (Lowery, 2001). Teaching information literacy skills that are part of an inter-disciplinary, non-linear process engages students in a variety of mediums and supports the constructivist approach, which is reflected in the research by Brooks and Brooks (1999), confirming the logic in the assertion that when confronted with new information in any form, a person will endeavour to make sense of it.

Guile (1998) supports this constructivist perspective by alluding to the belief that learning does not merely imply 'transplanting' facts from one medium to another because purposeful processing needs to take place; a transformation needs to take place or learning is not constructing a new reality for the student. This is supported by Limberg's (cited in Bruce, 2002) research in Swedish schools, which concluded that students with a more structured and highly developed sense of information engagement achieved higher order learning outcomes, which were associated with deeper comprehension and interpretation and not merely

regurgitation. Lupton's study, although of undergraduate students, that information literacy was confirmed as being a distinct learning approach, has implications for teachers in that, "educators need to understand information literacy in a wider context and as an intrinsic part of learning" (Lupton, 2004, p. 89).

2.7.4 Information literacy as a constructivist process.

Constructivism, an educational 'doctrine' whose main protagonists include John Dewey and Piaget (Schwandt, 1994, p. 118), is a suitable approach upon which to measure respondents' conversations, with regards their application of information literacy to the classroom. It is relevant because it establishes the premise that complex thinking is an acquired art, not a natural phenomenon that would have occurred spontaneously and that "learning encourages students to construct new knowledges through the use of complex reasoning skills, such as hypothesising, synthesising and evaluating" (State of Queensland, Department of Education, 2001, p. 17). The principles of constructivist learning reflect the premise that existing understandings are used to build new knowledge. Students need to be actively engaged in an investigation of information to enhance effective learning and that such deductive and inferential investigative thinking frameworks or patterns need, according to a constructivist argument, to be nurtured and taught (Pritchard & Cartwright, 2004).

Constructivism implies that knowledge is dependent on human practices and Crotty (1998, p. 42) states it is an epistemological view that "brings objectivity and subjectivity in an active relationship". This perspective marries well with the poststructural and postmodern methodologies, which supports the research of this study. Because constructivism is involved in the formation of knowledge and a mastery of skills, an appreciation of constructivism will

assist in analysing transcripts that reflect research question three, which examines how, when and why teachers acquire information literacy skills.

2.8 Summary of Chapter 2

This chapter presented the wealth of literature that is associated with information literacy as a teachable program that is modelled on research that has a constructivist approach to teaching and learning. Information literacy is presented as a relatively new concept and the chapter examined the evolution of the term over the last forty years since the origin specific reference made in 1974 by Zurkowski (Spitzer, Eisenberg & Lowe, 1998). An important theme in this chapter was the role played by library staff who, representing an industry responsible for an 'information environment', are still instrumental in probing definition and delivery of programs that enhance a person becoming information literate.

Information literacy initiatives that were promulgated by different Australian state and territory educational authorities were examined, especially the Tasmanian context. The *Essential Learnings Framework* (Department of Education, 2003) and the new Tasmanian curriculum (2007a) were examined in the context of curriculum reforms that could be viewed as vehicles for implementing information literacy initiatives.

Learning theories of consequence to knowledge creation were discussed in the context of supporting the integrity of programs that include the teaching of information literacy. Research by Bruce (2002) was explored to support the view that information literacy skills need to be explicitly taught if the deep learning, that is characteristic of constructivist learning methodologies, is to be realized. An examination of Lankshear's (2003, p.169) term

'digital epistemologies' was an important consideration as it tied information literacy to the 'artefact' of ICT, which most teachers have experience with on a technical level, not necessarily an information engagement level.

CHAPTER 3 METHODOLOGY

In reality, to be blunt, we don't really draw from our established school documents that were designed when we were up for registration and they were never looked at. To be honest, teachers need to be accountable and the concept of collaborative teams implies the work is more uniform and the teachers are less inclined to do whatever they like. Potentially, teachers working in isolation can do whatever they like; I know that sounds ruthless. I don't believe staff are proficient because given the limited amount of time that teachers have to sit and reflect, if indeed some do, then the changes brought about by curriculum reform are almost at the end of their life-cycle as you come to an understanding of it. Teachers finally get their head around it and get it sorted, and perhaps they maybe could have put a little more time and effort into reflection, so there is a lot of frustration given the time they are able to put into it. So there is a tendency for a culture in Catholic schools for a lot of, 'I'll dig myself down into the trenches and keep my head down, nod at the right times and keep my door closed and keep quiet and ride this out; it's going to come back to something else soon'. Some keep on teaching what and how they have always taught and hide it well (Respondent 17).

3. Introduction and overview

The investigation of the hypothesis that information literacy is the nexus between accessing information and the creative acquisition of knowledge, and therefore the teaching of a structured information literacy program is an educational imperative will be undertaken using a single and considered methodology. Using qualitative analysis, research question one, which examines a teacher's perception of information literacy, will be investigated and an explanation provided of why this class of methodologies was chosen. Postmodern and post-structural theories were used in the analysis of interview transcripts and this chapter will explain why these theories had particular relevance, especially in addressing an exploration of research question two, which questioned what teachers discussed when engaged in curriculum reform. And finally, there will be consideration given to an examination of the practical considerations of this research; a discussion of facts that relate to how each teacher who was interviewed regarded the importance of acquiring information literacy skills. This particular focus addresses an investigation into research question three that involves determining how, when and why teachers acquire information literacy skills, which implies determining the nature and context of their relationship with their school.

3.1 Qualitative analysis

Qualitative research is the methodology that has been chosen for this study because it is useful not only in the investigation of "person's lives, stories and behaviour, but also about organizational functioning, social movements, or interactional relationships" (Strauss & Corbin, 1990, p. 17). It is also aligned to a research tradition that views the natural setting as the focus of the inquiry (Silvermman, 1993, p. 23). Such a focus accords with this project's intent that is seeking to determine how his or her working environment has affected a teacher's beliefs of information literacy.

Qualitative research is usually less about factual information than about discovery and interpretation of meanings (Denzin & Lincoln, 2000, p. 3). There is nothing new in the suggestion that a rich qualitative project will be holistic. Any project is a complex, fluid, evolving, and highly self-referential product of human endeavor. Texts present qualitative work that way, presenting the perspective that any analysis is not a later stage after data collection but an ongoing weaving together of meaning and the processes of interpretation (Richards, 1999, p. 15). The strategies for inquiry that were used in this research are characteristic of qualitative research. A number of characteristic statements used by qualitative researchers are applicable to this proposal although the premise behind this research is closely aligned to the following key statement regarding qualitative research:

> In most qualitative studies, the central problems are to identify how people interact with their world (what they do), and then to determine how they experience and understand that world: how they feel, what they believe, and how they explain structure and relationships within some segment of their existence.
>
> (Locke, Spirosa and Silverman, 2000, p. 98)

Teaching is not a technical vocation; each class is a 'living laboratory' with a sense of its own subjective reality. Teachers, in their creation of a rigorous curriculum, need to make sense of a multitude of environments in creating their curriculum. There is, therefore, a need to avoid what Aoki (2004) states as the "black-box view of teaching...the way in which, by ignoring the lives of teachers and students, they are cast into nothingness" (p. 188). Using qualitative analysis, it should be possible to elicit responses to curriculum design based on a

practitioner's own interpretation of information literacy because this methodology "allows the researcher to identify subject positions which may constrain or facilitate actions or experiences" (Willig, 1999, p. 2)

3.1.1 Blumer's Symbolic Interactionist theory

Blumer's Symbolic Interactionist theory (cited in O'Donoghue & Punch, 2003) has influenced this proposal. Blumer asserted that it is through social interaction that humans form, modify and transform meaning. This perspective is an important guide to examining all three research questions, because every one of the research questions has intrinsic to it an element of social interaction. Therefore, the three underlying principles of Blumer's theory, which are explained briefly in the following quote, assisted the researcher in framing both the research questions and interviews on the basis of:

> Human beings act towards things on the basis of the meanings that the things have for them...the meaning of such things is derived from, or arises out of, the social interaction that one has with one's fellows...meanings are handled in, and modified through, an interpretive process used by the person in dealing with the things he (sic) encounters.
>
> (Blumer, cited in O'Donoghue & Punch, 2003, p. 35)

3.1.2 Englebart's Augmentation Conceptual Framework

It is the intent of this research to investigate the factors that practitioners engage in when involved with curriculum design and reform as it applies to interpreting and incorporating information literacy skills. Englebart (Friedewald, 1997) devised a conceptual framework that assumes there are four basic classes of capabilities: *Artefacts, Language, Methodology* and *Training*. This conceptual framework assumes that, through problem solving, large problems

are broken down into smaller solvable pieces with the whole system being managed by a supervisory process that keeps the bigger picture in mind. Englebart's conceptual framework applies well to this study in that it provides the researcher with a guided focus for investigation and provides a nomenclature to bring together or consolidate a number of key elements of the expected discourse that relate to addressing this study's three research questions and hence enhance focused research. It is envisaged that Englebart's augmentation conceptual framework will allow for manipulating the processes, which in this study involves curriculum reform, and result in improved artefacts, language and methods. Englebart's conceptual framework is summarised as:

> The ways in which human capabilities are thus extended are here called augmentation means, and we define four basic classes of them:
>
> 1 Artefacts-physical objects designed to provide for human comfort, for the manipulation of things or materials, and for the manipulation of symbols.
> 2 Language-the way in which the individual parcels out the picture of his (sic) world into the concepts that his (sic) mind uses to model that world, and the symbols that he (sic) attaches to those concepts and uses in consciously manipulating the concepts ("thinking").
> 3 Methodology-the methods, procedures, strategies, etc., with which an individual organizes his (sic) goal-centered (problem-solving) activity.
> 4 Training-the conditioning needed by the human being to bring his (sic) skills in using Means 1, 2, and 3 to the point where they are operationally effective.
>
> (Friedewald, 1997, ¶4)

Englebart's Augmentation Conceptual Framework allowed the researcher to create a mind map (Figure 2) that facilitated the organization of undertaking the research. It is

important with any research that the researcher is not lost in big picture ideas at the expense of ascertaining the relevance of small and perceivably insignificant 'events', or as Spivak (1990, p. 136) highlights, examining big ideas through "small things, moments". The deconstruction of the data that supports this research, which is a postmodern device (Gilbert, 1997), is aided by Englebart's Augmentation Conceptual framework because it provides a means for this researcher to analyse both 'the parts', whilst being aware of the relationship with 'the whole' (Beilharz, 1991, p. 53).

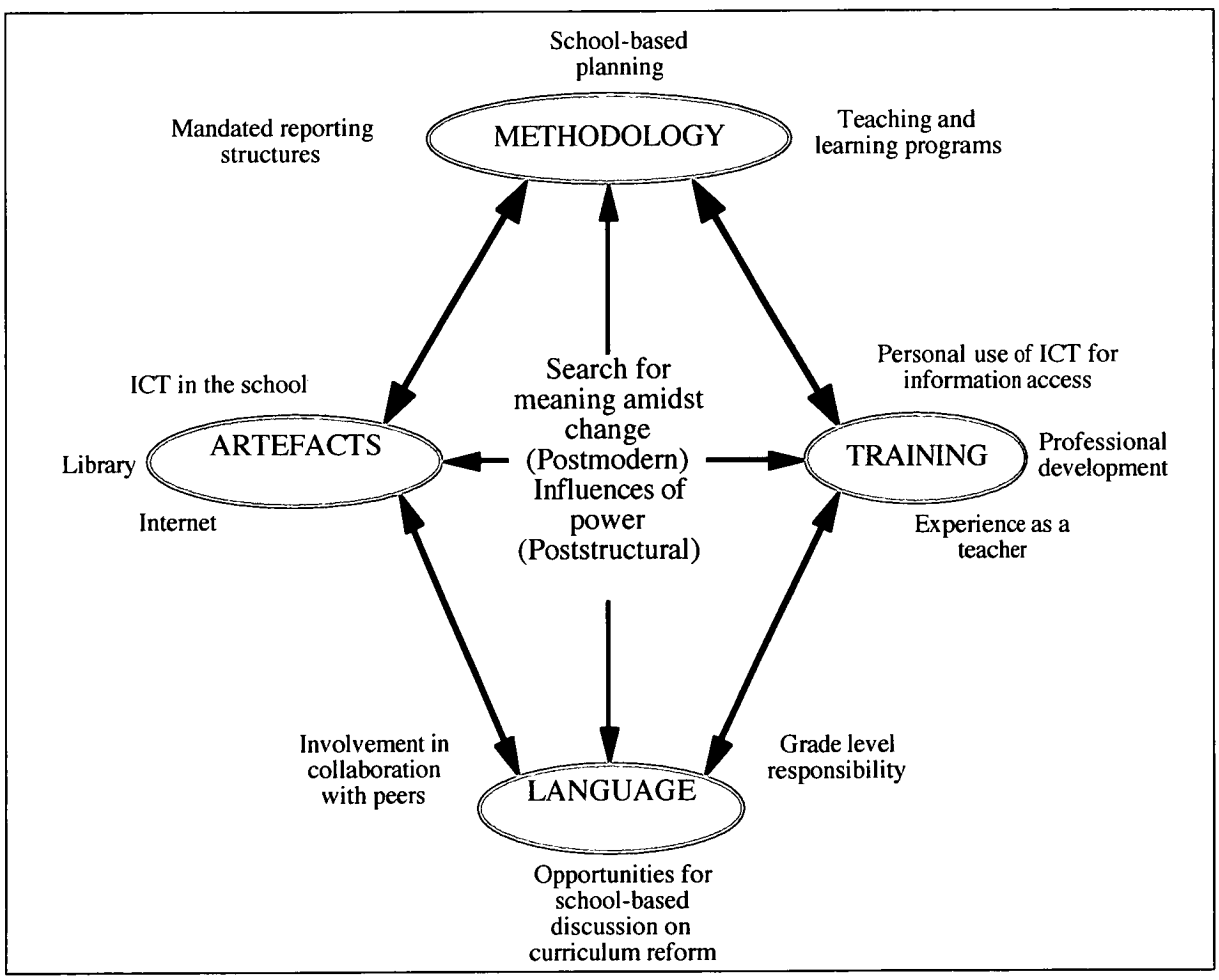

Figure 2 Mind Map of Englebart's Augmentation Conceptual Framework

Using the lenses of Poststructuralism and Postmodernism, which will be discussed in the next section, Englebart's Augmentation Conceptual Framework, facilitated the theoretical

constructs of the organisational aspects of the research plan, and provided a workable structure for research. Using this approach, it was clear to the researcher that analysis regarding usage and definition by respondents could be attained for the following key terms: information; information literacy; knowledge; learning; curriculum; reform; collaboration; professional development. This structure allowed analysis of discourse that was broader and slightly more elaborate than the definition of discourse as "speaking that is consistent with the values of a particular context" (Rowan, Knobel, Bigum & Lankshear, 2002, p. 54). Rather, it enabled an analysis of the terms in the context of social practices (Fairclough, 2000, p. 170), the analysis of which is intrinsic to all three research questions. A teacher's self-concept, educational values system and experience with information literacy, intrinsic elements to the three research questions, were all able to be identified far more clearly using this framework as it facilitated the "process of bringing order, structure and meaning to the mass of collected data" (Marshall & Rossman, 1995, p. 111).

3.2 Poststructuralism

3.2.1 Poststructuralism defined

Poststructuralism "names a theory, or a group of theories, concerning the relationship between human beings, the world, and the practice of making and reproducing meanings" (Belsey, 2002,p. 5). The methodology inherent in this project needs to ensure that there is meaning made from the analysis of the interviews. Early aspirants of poststructuralism were Roland Barthes, Jacques Lacan and Jacques Derrida, who were intent on investigating a methodology that would "'deconstruct' the concealments of being" (Beilharz, 1991, p. 55) in order to examine the language in the context of intent and a reflection of the author's interpretation and experience of power or of being powerless. Michael Foucault's work on the fabrication of reality supports this poststructural approach in that it examines the play of

power that is represented in language and how people, become subjected to and "moulded within the disseminations of power" (Natoli, 1997, p. 72).

Poststructuralists place importance of meaning and language within a subject's context (Norris, 1990, p. 44). Saussure's work on words as signs is an important feature of poststructural theory (Belsey, 2002, p. 11). Saussaure identified words as being signs, with words being both *signifier,* which represented the sound or the appearance of the word, and as *signified,* which implied its meaning (Norris, 1993, p. 26). Ideas issue from the meaning that one constructs from one's learning and, therefore, context is important in the construction of ideas and interpretation of meaning. We are consequently searching for meaning because we often do not receive reassurance from others that our ideas are grounded in the reality of others; poststructuralism identifies the point that "we are creatures of difference" (Belsey, 2002, p. 8).

3.2.2 Appropriateness of poststructuralism to this research

It is the sense of making meaning of the world, the teacher's world in particular that affirms a poststructural position to be appropriate for this research. An alignment with the poststructural theories will allow the researcher to view the interviews with teachers according to the teacher's beliefs, thereby referring to research question one that seeks to tease-out teachers interpretations of information literacy; poststructuralism allows for meaning-making to be viewed and analysed according to the social and political context in which they operate. There is, therefore, a subjective reality that underpins postructuralism that allows conversation between researcher and respondent to be authentic and personal.

This personalized meaning-making that sometimes arouses in us a different interpretation of language can, however, be debilitating for the researcher as it may contend that this "resistance to closure" (Stronach & MacLure, 1997, p. 6) may result in greater uncertainty. It is important, therefore, for the analysis to be guided by careful selection of questions that are aimed at eliciting honest responses from a unique personal perspective that address the following three key research questions:

1	What is a teacher's perception of the term 'information literacy'?
2	What do teachers discuss when engaged in curriculum reform especially in relation to information literacy?
3	How, when and why do teachers currently acquire information literacy skills?

Young (1971) suggests that knowledge is 'socially organized and constructed'. This has relevance for this research project, particularly the examination of research question two's focus on analyzing the nature of teacher discussion when engaged in curriculum reform. The significance of post-structuralism becomes especially evident when viewed in the context of Fullan and Stiegelbauer's (1991) conclusions that curriculum innovations had remarkably little effect on what actually happens in classrooms. The use of a post-structuralist theory as a guiding concept to provide an insight into curriculum reform from a teaching practitioner's perspective is therefore relevant because post-structuralism has intrinsic to it a reliance on language because this discourse is viewed as "the site where reality and meaning emerge" (Ball, 1990, p. 2).

This study will rely on deconstruction, which is an important technique intrinsic to post-structuralism, and it is envisaged that data analysis using such a technique will expose the

"assumptions and metaphors on which discourse becomes possible" (Gilbert, 1997). This will allow for reflection on the processes involved in incorporating information literacy in curriculum reform. Therefore, by establishing a post-structuralist position using Foucault's insights into discourse and the relationship between language and power, it will be a task of this research to investigate the institutional effects of discourse with specific regards to "all those techniques by which a decision is accepted and by which that decision could not but be taken in the way it was" (Kritzman, cited in Barrett, 1991 p. 103).

Poststructuralism will allow the researcher to examine the interview conversation according to both: *signifying*, implying the word as an example of image or sound; and *signified*, implying the word as meaning (Belsey, 2002, p. 11). Consequently, greater analysis can be devoted to the different interpretations that each interview respondent makes of the meanings associated with key words and phrases such as 'information literacy', 'information', 'knowledge', 'learning', 'curriculum', 'reform', 'collaboration' and 'professional development'. Postructuralism, therefore, will allow for the research methodology to result in a deeper analysis of interview transcripts.

3.3 Postmodernism

3.3.1 Postmodernism defined

Postmodernism and poststructuralism are often used interchangeably. Although they are associated with a range of different meanings, these terms do relate to a particular way of thinking about issues including language, knowledge and identity (Heise, 2004, p. 136), all of which are important aspects that frame the methodology of this study. Postmodernism is inextricably linked to significant societal changes that are illustrated by a crisis in confidence, especially in the western developed world (Lather, 1994, p. 102). The interpretation taken by

this researcher of postmodernism that differentiates it from the power that is revealed in the communication practices of poststructuralism, lies in this broader context of change and its related crisis and loss of confidence experienced by respondents as they go about their lives as teachers amidst constant change to the culture of their workplaces. Framing the methodology using a postmodern perspective will, therefore, confer a degree of dependability to the research because the research will acknowledge that interview conversations will reflect different perspectives, all contributing to the creation of dependable interpretations (Stonach & MacLure, 1997).

3.3.2 Appropriateness of poststructuralism to this research

Egan states "because it is impossible to separate the decision from the decision maker, the processing of information is as complex as the person making the decision" (Egan, 2007, p. 238). The postmodern approach is taken as a philosophical framework for this data gathering because it does allow for an acceptance of various perspectives (Wiersma, 1995). Since interviewing is the technique that is used for gathering data, the postmodern framework will allow for the interview to accommodate individual school contexts and support the interviewees' perceptions that what they have to say is important. Scheurich (1997) concurs that there is often misapprehension experienced by interviewees, which tends to hinder full, open and frank dialogue.

Adopting a postmodern approach to data gathering also addresses the fundamental question regarding 'why interview?'. The importance of the contribution of personal context from teachers by way of personal and guided discussion should address the three research questions, which in turn will enhance "the capacity to listen productively to the discourses of

qualitative research" (Piantanida and Garman, 1999, p. 46). Gathering evidence, therefore, needs a personal and one-to-one experience (Scheurich, 1997), whereby the conversation, prompted by guided questioning and the associated elaboration and clarification that is indicative of any meaningful discourse, allows the respondent to fully and comfortably articulate his or her experience of information literacy.

Using a postmodern construct respects the interplay between the subject of the interview, appreciating the power relationship between the interviewer and the interviewee (Scheurich, 1995), and is intended to allow for negotiation of meanings that are typical of conversation (Pring, 2000). This allowed for language to be freer and more honest in response. Questioning techniques, as elaborated upon by Charles and Mertler (2002) and Piantanida and Garman (1999), will be employed to ensure effective discourse is initiated through carefully constructed interviews, which although time consuming, can strengthen the validity of the data gathered (Blendinger & Wells, 2001).

The research and data gathering process is framed to reflect evidence by Broadfoot (cited in Vulliamy, Kimonen, Nevalainen & Webb, 1997, p. 111) who conducted comparative analysis of primary schooling in England and France and who claimed that "it is the ideology or, to put it another way, the conception of their professional role, which plays the most fundamental part in determining what teachers do". Teachers interviewed in this study also confirmed conclusions reached by Broadfoot and Osborn (1995, p. 1) that "external directives in themselves are not sufficiently powerful to change the educational values which provide the core rationale for teachers' actions". Therefore, the gathering of evidence for this study recognized the importance of a teacher's self-concept, which appears to be a significant

determinate with regards the teacher's interpretation of initiating reform (Nias, 1991). It was important to allow a teacher's values system and personal educational ideology to be voiced without compromising any interview engagement.

3.4 Practical considerations for gathering evidence

3.4.1 Validity and reliability

The use of poststructural and postmodern theories to frame the study's investigation implies the qualitative nature of the research should be dependable, but not necessarily valid in the sense of valid meaning research that is "arrived at by statistical procedures or other means of quantification" (Strauss & Corbin, 1990, p.17). The researcher interprets 'validity' to concur with the explanation provided by Charles and Mertler (2002, p. 41) who state "data are valid to the extent they depict or deal directly with the topic under consideration". Therefore, this researcher believes the conditions of data collection and analysis that has characterized this project makes the data reliable because there is the assumption that results from similar studies would be consistent and supportive.

Dependability rather than validity, is more applicable and pertinent to use when describing the methodology of this study, and is referred to by Mishler (1990, p. 149) as being trustworthy enough for the reader to "act upon". Thus, although poststructural and postmodern theories do not ellicit research results that are quantifiable and valid in all situations and circumstances, the methodology used in this study is reliable and trustworthy in that it allows others, whether they be teachers, principals, educational officers in the Catholic Education Office or researchers to follow up with action. This reader of this study

should then be able to generalise to their own context, which has connotations of postmodernism and reflects the view held by Eisner (1991, p. 211) who stated that "connections have to be built by readers, who must also make generalizations by analogy and extrapolation, not by watertight logic applied to a common language".

3.4.2 Choice of interview for data gathering

This study was framed using qualitative research and involved interviewing 23 educators in seven primary schools, has the intent to scrutinise interpretations and consequential application of information literacy in classroom curriculum and practice. In an attempt to recognise and prevent interviewer bias, which is "the systemic differences between interviewer and interviewer" (Kidder, 1981, p. 184), the personal, one-on-one interview by one interviewer was conducted in all cases with the respective teacher respondent who has willingly accepted an invitation to an interview in their choice of locations. The interview was deliberately chosen as the technique for data gathering because it has advantages over questionnaire surveys in that "there is no problem with nonresponse...provides opportunity for in-depth probing, and elaboration and clarification of terms if necessary...and there tends to be more success with obtaining responses to open-ended items" (Wiersma, 1995, p. 196).

3.4.3 Demographic differences

The study involved interviewing the principal, Assistant Principal and/or two teachers from each of seven Catholic primary schools in the north of Tasmania. The seven schools selected reflected a variety of demographics and included a large, double-stream (two classes of the same year level for each year level) school, a small single-stream school, urban and rural

locations (Table 6). Although offering a relatively small study sample, this research should provide invaluable insights into the process of curriculum reform currently engaged in by Tasmanian Catholic school teachers and how they interpret and incorporate a new essential learning such as information literacy.

Respondents	Male	Female	Small rural (between 90 and 150 students)	Small urban (between 90 and 150 students)	Large urban (greater than 150 students)	Prep	Year1	Year 2	Year 3	Year 4	Year 5	Year 6	Principal
1	1	0	0	0	1	0	0	0	0	0	0	1	0
2	0	1	0	0	1	0	1	1	0	0	0	0	0
3	1	0	0	0	1	0	1	0	0	0	0	0	1
4	0	1	0	1	0	0	0	0	0	0	0	1	0
5	0	1	1	0	0	0	0	0	0	0	0	0	0
6	0	1	0	0	1	0	0	0	0	0	1	0	0
7	0	1	1	0	0	0	0	1	0	0	0	0	0
8	0	1	0	1	0	1	0	0	0	0	0	0	1
9	0	1	1	0	0	1	0	0	0	0	0	0	0
10	0	1	1	0	0	0	0	0	0	1	1	0	0
11	1	0	1	0	0	0	0	0	1	1	0	0	1
12	0	1	0	1	0	1	0	0	0	0	0	0	0
13	1	0	0	0	1	0	0	0	1	0	0	0	0
14	0	1	0	0	1	0	0	0	0	0	0	1	0
15	1	0	0	0	1	0	0	0	0	0	0	1	0
16	1	0	0	1	0	0	0	0	1	0	0	0	0
17	1	0	0	0	1	0	0	0	0	0	0	0	1
18	0	1	1	0	0	1	0	0	0	0	0	0	0
19	1	0	1	0	0	0	0	0	1	1	0	0	0
20	1	0	1	0	0	0	0	0	0	0	0	0	1
21	0	1	1	0	0	1	0	0	1	0	0	0	1
22	1	0	0	0	1	0	0	1	0	0	0	0	0
23	1	0	1	0	0	0	0	1	0	0	0	0	0
	11	**12**	**10**	**4**	**9**	**5**	**2**	**4**	**5**	**3**	**2**	**4**	**6**

Table 6 Details regarding gender, school type and year level taught of respondents

The schools were informed of the proposal, with discussions conducted during staff meetings

to inform all staff of their invitation to be interviewed (Appendix B) as part of the study, and it was important to meet initially with prospective interviewees prior to their intentions being made known and gain their consent (Appendix C). Because the interview is a rather personal interaction and in some instances "respondents are easily influenced by the interviewer's manner" (Charles and Mertler, 2002, p. 39), the interviewer should ensure prospective interviewees are confident that they can both trust and be honest with any engagement and participation in the interview process. A rapport was developed through informal discussions with participants and after the completion of the interview, it was made clear to all respondents that their interview transcript would be mailed to them for any comment that they would like to make prior to analysis (Appendix D).

All but one of the seven schools involved in this study would be classified as moderate to small with regards to student population size. Accordingly, the study recognised certain key characteristics that overseas studies of small to moderate schools encountered which include:

> A family-like atmosphere with highly informal relationships between all the school staff and between teachers and pupils, a lack of adherence to the more formal procedures and rituals to be found in larger schools, close links between a school and its local community and an emphasis upon oral rather than written communications and documentation. (Vulliamy, Kimonen, Nevalainen and Webb, 1997, p. 15).

Using poststructuralism and postmodernism as guiding methodological constructs, it was deemed important to include schools of different demographics because it would inform the research of the extent of influence such variables may present in addressing the three research

questions. Examining these research questions required an examination of a teacher's understanding of information literacy, how the teacher may have acquired skills in information literacy and a teacher's beliefs regarding curriculum reform. Ensuring respondents represented schools of different demographics and the respondents themselves reflected different personal attributes relating to age, teaching experience, year level taught and tertiary experience would satisfy these methodological constructs. It was important from both a poststructural and a postmodern perspective to examine whether a teacher's beliefs may be influenced by the respective school's demography and a teacher's own 'character' that is affected by teaching experience, year level taught, recent experience in tertiary education, experience with ICT, involvement in professional development, gender and age.

3.5 Ethical considerations

The methodology that supports the research for this project is qualitative research, which relies on both poststructural and postmodern influences. It has already been established earlier in this chapter that both theories deal with concepts associated with change and power. Research has similar associations because it "is always and inevitably involved with and implicated in the operation of power" (Scott & Usher, 1999, p. 1). It is therefore imperative that the researcher is aware of these power influences and manages the research methodology according to assertions by Pring (2000, p. 150) that the ethics of research is both a reflection of and conditioned by "moral and intellectual virtues'. Burgess (1985, p. 191) concurs with this moral dimension subsumed in the power relationships associated with research by stating that "implicit in any form of research is the need for trust in the researcher's integrity".

The methodology also had to allow the teachers who were interviewed to feel that their answers and conversations were valued; that there was really no 'correct' response or,

equally, a response that could possibly result in a loss of face. This aspect of ensuring the research did not compromise the professional dignity of the respondent was especially relevant because the researcher was known to be a 'fellow teacher' in the same region. It was important to ensure respondents did not act out or elicit remarks that they may have felt were expected of them and is typical of some qualitative research whereby the subjects become more concerned with the emotional aspects of the process rather than the intent of the process (Horschschild, 1983). The researcher ensured the interview was held at a time and location that was of the respondent's choosing, the audio-tape was unobtrusive and the researcher and respondent were seated comfortably, with an awareness of using appropriate positive body language, all aiding in reassuring the respondent and allowing for respondents to overcome their feelings of vulnerability and exposure (Hammersley, 2003, p. 120).

3.5.1 Obtaining permission and consent

Permission was sought initially from the Catholic Education Office, Hobart Diocese, the primary employing body for all Catholic schools in Tasmania (See Appendix H). Permission was then sought and obtained from principals in seven primary schools (See Appendix G) in the North of the state and introductory invitations distributed to all staff in these schools (See Appendix B). The researcher then made contact with interested staff members and times and venues for interviewing staff were confirmed. All but four of the 23 interviews were conducted at the staff member's respective school, with the other four interviews being conducted at the staff members home or at another school. Ethical clearance for conducting the research was obtained from the Human Research Ethics Committee (Tasmania) Network (See Appendix I).

3.5.2 Confidentiality

The 23 respondents were invited to participate in this study and at all times they were informed of the voluntary and confidential nature of the study. This was clearly stated in the

initial invitation letter and the Consent Form (See Appendix C) that was discussed personally with each respondent immediately prior to the interview. Each respondent then received a printed transcript of the interview and invited to comment regarding the validity and authenticity of the interview transcript with an invitation to communicate any errors or concerns to the researcher. The respondents were informed that they could withdraw from this research at any stage of their involvement; from their initial expression of interest, through to the actual interview and on to the use of the transcript which was provided to each respondent as a print copy prior to analysis. This development of trust and assurances of anonymity is intrinsic to the development of a suitable researcher-respondent relationship. Engendering a rapport with respondents is important if research is to be honest, open and conducive to the research goals (Bogdan & Biklen, 1992).

3.5.3 Minimising risks

There was no foreseeable risk to participants from this study, although respondents were informed clearly of the intent of the interview and study and that their privacy and rights were to be given a high priority, which is essential if participation was to be open, honest and productive (Marshall & Rossman, 1995). Anonymity was preserved and participants' involvement in the study should, in fact, act as a stimulant for a more informed engagement in curriculum innovation as it relates to incorporating information literacy into the curriculum. At the beginning of the formal interview, respondents were asked to reconfirm their willingness to be recorded. They were also reminded at this point they could refuse to answer any question, which made them experience any discomfort, without any consequences. Data collected in the form of audio taped interviews and consequential transcripts were encrypted to ensure privacy of participants and all raw data will be held on University of Tasmania Premises for a period of at least five years from the date of publication; discs will be erased or destroyed and transcripts will be shredded upon

conferring of this award. Respondents were assured that their names were not required as part of the investigation, nor would specific schools be identified without consent.

3.6 Interpretation Of Evidence And Data Analysis

Data collection relied on constructing a list of questions (refer to Appendix A) that allowed participants to engage in a conversation. This conversation was aimed at eliciting an understanding of the teacher's engagement in curriculum reform, especially as it pertains to interpreting and implementing information literacy. Feldman, Bell and Berger, (2003) highlight the powerful nature of validating a hypothesis by way of eliciting responses that are directly focused on addressing specific research questions with the interview process enabling elaboration and clarification of interpretations regarding the respondent's personal perspective. This research data was collected cumulatively over a one month late in 2006 using questions that heeded Wiersma's (1995, p. 179) 12 insights regarding item construction especially "avoiding questions loaded with social or professional desirability...and include one concept in a single item".

Each interview was audio-taped and the transcription was typed within 72 hours. This was to allow the researcher to reflect on the process, especially the significance of pauses and subtle reflections via body language and intonation that was apparent in the interview, but not necessarily in the text that appeared on the page. It was important to have the image of the interview still in the memory when transcribing the audio-tape to the printed transcript in order to prevent deliberate or accidental alteration of the transcribing process (Poland, 1995, p. 6). Given the context of poststructuralism that guides this research, the researcher is aware that the transcript is a "faithful reproduction of the record" (Poland, 1995, p. 2) only in regards the data that is collected is unstable and temporal (Stronach & MacLure, 1997). In order for the

transcripts to have the integrity that is necessary for analysis, albeit as an understanding of a perspective that is open to varied interpretations (Lapadat, 1999, p. 82), it was necessary to examine each transcript in the light of other transcripts. This accords with comments by Marshall and Rossman (1995, p. 111) that allude to the non-linear nature of qualitative data analysis, where analysis is not neat and the process of establishing some order and pattern to the data collection can be time-consuming.

From my perspective as an interviewer, I acknowledge that in transcribing the responses, I was able to more fully interpret and analyse important themes that became more apparent as I compared each respondent with another. This evolving confluence of constructed knowledge enabled me to put my own assumptions and beliefs into a stronger perspective; a perspective that evolved in the sense that knowledge is supposed to according to poststructural theory, which examines the play of power that is represented in language. As an interviewer, using this poststructural lens, I was able to deconstruct each interview and compare and contrast key aspects of the response in order to address the three research questions. Having an appreciation of postmodern, poststructural and deconstructive theories enabled this analysis of each respondent and the subsequent scaffolding of new knowledge, or the construction of new knowledge on my behalf to have a structure.

3.6.1 Using QSR Nvivo 7 to collate and analyse transcripts

Qualitative analysis of rich data or rich text implies that researchers aim to gather data that reflect relevance, impact, complexity, or fluidity and Nvivo appears to address all four goals (Richards, 1999). Nvivo enables the researcher to analyse and interpret data skilfully and purposefully, enhancing the yet to be discovered or ever-changing nature of interpretation of rich data. QSR Nvivo is "generally regarded as being one of the more sophisticated qualitative analysis packages" (Weitzman &Miles, cited in

Crowley, Harrè & Tagg, 2002, p. 194) with its use being world-wide and a progression of the established NUD*IST program. Nvivo, although emerging from the established reputation of the NUD*IST program, offered enhancements on NUD*IST in that it allowed for greater editing proficiency whilst doing analysis. It also offered visual coding through highlighting of text, greater organization of ideas into nodes that were categorised into trees and offered a way "of enriching code-and-retrieve into an engine for abstraction, theory-building and hypothesis-probing" (Richards, 2002, p. 213).

Nvivo also has the added advantage of allowing the researcher to modify the analysis and allow the project to evolve, as different patterns became more apparent with analysis and reflected the traditional, pre-computer analysis of data whereby:

> Researchers commonly wrote up their notes on paper or in a word-processor, and marked them with codes as they went along. Additions, changes, erasures, corrections, could all be made but the markups would still be there and easy to modify if needed. Writing and coding at the same time enabled gentle organic growth of a project. This had been lost in qualitative computing. But in NVivo, QSR has invented a method of storing coding at the character level which is impervious to the adding and deleting of text (Richards, 2002, p. 208).

Significant variables that will be examined using QSR Nvivo7 software will relate to all three research questions. Data collection and analysis relies on management of the data and integration between the researcher and ideas, all of which will be fairly dynamic in its nature. QSR Nvivo7 software was central to this data analysis because it allowed the researcher to complete the following tasks which are all integral to this research focus:

> Seeing the story in complicated data and finding out what's going on; linking ideas together; locating all answers to a question and then looking for key ideas expressed in the responses; doing the data justice – not just summarising it but really exploring.
>
> (Gahan & Hannibal, 1998)

Nvivo 7 is an enhancement on the earlier NUD*IST software in that it extended the accepted code-based theorising methods that characterised NUD*IST. Nvivo 7 includes more enhanced coding, including coding for attributes and "search and access tools that are more accessible and integrated" (Richards, 1999, p. 3). The use of Nvivo 7 was intended by this research to echo the sentiments of two other researchers who, upon being challenged by the dilemma of deciding whether to spend time learning the Nvivo 7 program stated that their experience with Nvivo "significantly enhanced our ability to analyse" (Crowley, Harrè & Tagg, 2002, p. 197).

Nvivo 7 also offers the creation of matrixes, which allows for far greater analysis because "storing cells of a matrix as independent nodes allows for more sophisticated manipulation of data" (Bazeley, 2002, p. 240) whilst also offering the flexibility of being able to include selected nodes from any tree in any analysis or profile of coding stood out as being an important modification for the generation of quantitative output from the qualitative database. This capability of NVivo 7 of allowing coding to be undertaken by applying values and attributes, with the advantage of applying attributes and values to "mark one-on-one interview documents with the demographics of the interviewee, such as Age=45, Interview Date=12March1999, Gender=female" (Richards, 2002, p. 209), which has explicit implications for this research.

3.7 Summary of Chapter 3

Chapter three outlined the qualitative nature of the methodology by referring to poststructuralism and postmodernism as suitable perspectives that would frame the inquiry. Qualitative research was chosen as an appropriate research method because, by examining both the form and the function of language and its subsequent intention by the speaker (Rogers, 2004), it marries well to the conceptual framework that relies on Englebart's work on augmentation (Friedewald, September 1997). Post-structuralism complements this conceptual framework in that the intent of this thesis is to evaluate the exigencies that surround a teacher's interpretation of information literacy. A teacher's subsequent incorporation of information literacy engagements for his or her students within their curriculum planning was expressed as important in investigating the research questions whilst a post-structural context allows for an exploration of multiple perspectives.

The choice of seven schools in different locations with different demographics was explained. The decision to interview 23 teachers from schools of different sizes and demographics is supported by research that concurs that a small school has an ethos that is a reflection of the teaching loads imposed upon all teachers, principals included, which results in a different aspect of curriculum reforms that often "have been conducted in a spirit of informality which pervades life in a small school" (Vulliamy, Kimonen, Nevalainen and Webb, 1997, p. 15).

Practical considerations, including contending with confidentiality and respecting ethical issues, were explained including the processes involved in seeking approval from the employing bodies and the University of Tasmania. Associated with these practical considerations but also aligning with the methodologies involved in qualitative analysis, there

was a section that explained the choice of interview as a technique for data collection. Reliability of data was expressed as being, in this qualitative aspect, of greater importance and influence than validity because research by Strauss & Corbin (1990, p.17) aligns reliability of qualitative analysis to being valid in the sense that it is dependable.

Finally, the three research questions - *1. What is a teacher's perception of the term 'information literacy'? 2. What do teachers discuss when engaged in curriculum reform especially in relation to information literacy? 3. How, when and why do teachers currently acquire information literacy skills*? - were situated within the contexts of qualitative analysis, poststructuralism, postmodernism and practical considerations:

- Research question one - Using qualitative analysis, research question one was investigated and an explanation of why this class of methodologies was chosen.
- Research question two - Postmodern and post-structural theories were explained as theories that had particular relevance to the analysis of transcripts.
- Research question three - There was an examination of the practical considerations of this research; a discussion of facts that related to how each teacher who was interviewed regarded the importance of acquiring information literacy skills.

How do you feel about information literacy being mandated as a reporting element?

I think it's wonderful (laughter)...obviously, they don't think that we have much or enough to do (laughter). Teachers ought to be ready to report on this element; I think it's a reasonable expectation for classes in year 3 and up. I think we should expect a lot more given the enhanced physical access to information communication technology and believe strongly that we should be building up in the early childhood area. The computer literacy aspect is both age and home dependent. Children come to us with different skills and these skills are not consistent because, although I feel and suggest strongly that a significant number of kindergarten and prep children have access to computers at home, the preps and kindergarten children come to us with very poor fine motor skills because of the fiddling with computer games rather than kneading and ball games. . . There is minimal evidence in the planning of information communication technology, they don't say that 'Computers will do this", but there is little doubt that the kids are accessing information and answering questions using the Internet and I believe it is fast becoming or has become the norm for information searching. However, there is the odd child that would access the library database to answer the question, but I haven't seen this lately and it is really is the odd child who would access the library database prior to searching the Internet (Respondent 20).

4 Introduction and overview

This chapter will examine and analyse transcripts of interviews that were conducted with 23 teachers in seven primary schools in within the northern region of the Hobart Diocese. The intent of the analysis of interviews is to investigate the hypothesis that information literacy is the nexus between accessing information and the creative acquisition of knowledge and that the teaching of a structured information literacy program is an educational imperative. The chapter draws on the structure that was used in the methodology chapter and the investigation of transcripts will be organised according to how the analysis reflects the following three research questions:

1. What is a teacher's perception of the term 'information literacy'?

2. What do teachers discuss when engaged in curriculum reform especially in relation to information literacy?

3. How, when and why do teachers currently acquire information literacy skills?

4.1 Teacher beliefs

This section will investigate teachers' perception of information literacy and will therefore address research question one, which states *What is a teacher's perception of the term, 'information literacy'?* Most teachers recognised the value of incorporating information literacy in the curriculum and classroom planning, but information literacy appears to be both misunderstand and under-represented. Consequently, it is not included as an explicit aspect of a typical teacher's teaching and learning program and the following extract of a conversation from one teacher of 30 years experience is quite disheartening because it reveals the extent that information literacy is devalued as a teachable sequence of skills:

> I think it (information literacy) is a nature or nurture thing. I don't really teach them to deal with information. With those children who have skills (in information literacy), whether by nature or nurture, well you can then help them, develop them, structure their thinking and processing and involvement even more with the information that they have or encounter...information needs to be more than just regurgitation. (Respondent 21).

4.1.1 An overview of the factors that influence a teacher's perception of the term, *'information literacy'*

Any 'new label' that teachers confront when being obliged to be part of curriculum reform, will be met with a broad spectrum of reactions; from downright distaste and frustration at having to teach and assess another outcome in an already crowded curriculum, to a feeling that this initiative is just what teachers have been waiting for, is novel and provides a much-needed focus that was previously lacking. Plomp and Carleer (1987) were early researchers of the interpretations that educators attributed to information literacy and suggested that it was to be expected that teachers will have such a disparate understanding of the term. The term is evolving in definition, however, most teachers are also not well informed of information literacy's application to their curriculum. A consequence of the technology aspect being strongly associated with information literacy further confuses the true pedigree of the term for most teachers. For many teachers interviewed in this study the question remains unanswered: does information literacy lie primarily in the ICT domain and rely on being functionally computer literate or is it a literacy skill that incorporates ICT skills?

A study by Jennifer Branch (2004) of pre-service teachers' understandings of information literacy, all of the participants were able to define the term, with the majority of the 24 students being able to explain that the term had skills involving, finding, locating and acquiring

information (Branch, 2004, p. 40). This contrasts with conclusions reached in this study that found approximately 30% of teachers were able to confidently define the term comprehensively and unequivocally, although close to 90% also referred to technology in some respect with their response. One principal's comments regarding the importance of information literacy for primary school students highlights the expression either explicitly made or alluded to by most other respondents of this study, in that the skills of information literacy are commanding and empowering for the student in an age where their future information needs and portals will be different from the more traditional sources accessed whilst at school; what is truly amazing in this conversation is the fact that the principal admitted to being completely unable to adequately define the term, yet, when provided with a definition, he was able to articulate what his school is trying to do in order to satisfy the definition:

> *How would you define information literacy?*
>
> Well I don't know...maybe for me it's linked to multi-media or I look at information literacy and the implications of gathering and locating useful information from a situation whether its written text or media using a variety of sources, but I really don't know. I suppose it means being a successful learner, but to be honest, I don't really know.
>
> *Do you think it's possible to differentiate between knowledge and information?*
>
> After being given a definition, my first response is that I believe it is very digestible to me. So, while the name initially made me feel concerned, in terms of where our schools are at with the backward design process involved in curriculum design, and designing and implementing outcomes for where our kids should be, well by definition information literacy should be a part of most things because we really don't know what information needs the kids will need or what the future holds. We don't really know what jobs there are going

> to be or what skills they need, but we know that they need to be able to be proficient in working in individual and small groups and follow instructions and in unknown situations to be able to use known skills to gather the information they need for the time and place so in that sense information literacy is vital (Respondent 17).

By virtue of the fact that teachers have completed at least 15 years of 'schooling', being expected to take on more independence in their learning for one third of this time, it would be expected that they are a group whose knowledge of information literacy is sound and whose practice is refined. Information literacy, is the capacity to enable the individual to 'recognise when information is needed and have the capacity to locate, evaluate, and use effectively the needed information' (Bundy, 2004a, p. 3). For most teachers involved in this research it appears this term is very intangible, with few teachers articulating clearly a deep and working knowledge of the term. Of the 23 respondents, ten made explicit reference to having a lack of deep understanding and subsequential application, with three of the five principals being in this category, with one principal stating, "To be honest, it's only what I've picked up...(pause)...I don't think I've got a comfortable understanding of it..." (R3, ¶34) and another principal reinforcing this self-doubt by stating, "We, as teachers, often don't have the experience to draw on to create an environment of information literacy" (R8, ¶47). It is interesting that the principal identified with many of the teaching staff who appear willing to admit to their own lack of clarity of a reportable and accountable teaching and learning criteria, as expressed by the following respondents: "I don't really have a grasp of what is meant by information literacy" (R22, ¶28); and "I don't know how others interpret the term. I don't honestly teach it and we don't plan explicitly to teach this concept" (R2, ¶31) ; and, "Yes...(pause)...I do...(pause)...I think I do...(pause)...it's through videos and things like that isn't it?" (R5, ¶76). Another principal further reinforced the conclusion that information literacy guidance is not being

directed by the principal or school leadership team by stating when asked to define information literacy,

> Well, I don't know...(pause)...maybe, for me, it's linked to multi-media or I look at information literacy and the implications of gathering and locating useful information from a situation, whether it's written text or media, using a variety of sources, but I really don't know. I suppose it means being a successful learner, but to be honest, I don't really know (R17).

This principal further elaborated upon the impression that information literacy is but one of many aspects of a curriculum that is broadening, not necessarily deepening, a 'lateralising' curriculum, when he states:

> It's like teaching Religious Education; we do all these lovely watered-down Christian values so if someone asks you a question, you think, 'Bloody Hell, I don't know the answer!' So we resort to these water-cordial answers. It's the same with anything unknown; we opt out to something known because it's safe (R17).

Respondent 17 highlights the dilemma facing primary school educators when 'confronted' with a term that is unclear and also has possible implications of realigning an established teaching and learning methodology, by inferring that a teacher's role is primarily to create an environment of knowledge creation using a relatively small, safe information source that is screened and provided to students by the teacher/educator (Hutchison, 2006). Such a perception is validated by R19 when he states, "Um...(pause)...I'm trying to think of what the term means. As for me providing them (students) with information, for me, I'm mostly involved in 'chalk and talk' so most of the information is coming out of my mouth."

Curran (1993) and Cavalier (1993) were also early researchers of information literacy interpretations by educators and their investigations provide further evidence that

information literacy is very widely interpreted, almost universally accepted as being 'understood', but in reality is aligned to the respondent's personal domain or narrow inference of the term that is usually related to their prior experience with either libraries or computers, that the term becomes completely unfathomable and, hence, merely an unsubstantial label that, rather than meaning all things to all people, becomes nothing tangible to anyone. What is most disappointing from a teacher practitioner's point of view, and most disturbing from an academic aspect, is that nothing has changed in over thirteen years and one may argue that, from a curriculum perspective, the integration and prominence of information literacy as a key learning attribute, has diminished. Respondent 16, a teacher of 10 years experience who also has a strong background as an ICT coordinator, highlights a contradiction that was experienced by a number of teachers who confused or correlated information literacy with ICT, when he states "information literacy is complementary to information communication technology rather than English (as a reporting obligation) because of the sheer amount of information available in the information communication technology area" (Respondent 16).

4.1.2 Curriculum imperatives.

Teachers in Catholic schools in the Diocese of Hobart, which includes all Catholic schools in Tasmania, are provided with guides in curriculum design and delivery. Schools have leadership teams comprised of Assistant Principal (Teaching & Learning), Assistant Principal (Religious Education) and the Principal. Each leadership team delineates responsibility for the design, delivery and review of curriculum to one or more members of this team, with the New South Maths curriculum and the Hobart Diocese's *Good News For Living* Religious Education curriculum framework being the only two key learning areas that are afforded clear and unambiguous direction by the Catholic Education Office. Therefore, a

comprehensive curriculum structure that is developed centrally for interpretation and implementation by individual schools does not exist in the Hobart Diocese.

The lack of rigour and structure of curriculum delivery in the Tasmanian schools sampled has been, and for many teachers interviewed still is, characterised by a haphazard, chaotic and even lackadaisical approach to the creation of school-based programs by classroom teachers. This is contrasted only slightly by the Tasmanian Department of Education approach that only schools can create curriculum and a framework is provided for teachers to structure teaching and learning programs. One teacher, after explaining and detailing the generally wonderful work done by teachers and aides especially in establishing strong literacy programs in the early childhood years, lamented the fact that it was mainly a reflection of the work undertaken by long-established staff who were very experienced, but that when it came to being able to evaluate comparatively with what was done at other schools it was difficult because, "teachers at our school construct their own curriculum according to their own interpretation" (Respondent 6).

Six teachers referred to the National Statements and Profiles that were generated in 1994. The references made to the various national statements, however, were generally quite vague, with the respondents not appearing to be positing the documents as key materials for curriculum design as highlighted by the following statements: "It's hard to think of how we divide the curriculum but I think we are still very much operating in the key learning area basis framework" (Respondent 1), and "we have a long way to go in the area of curriculum design and in one example of the staff planning proforma there is an expectation for staff to state how they use ICT, although the staff are not using the national statements" (Respondent 1). The principal of one school was very confident that staff at the school were using the national statements by saying "our school is using scope and sequence based on national statements that

were developed at school" (Respondent 8), however, such confidence was not expressed by the school's Assistant Principal (teaching and learning) who stated "um... (pause)...some of us follow the national statements" (Respondent 4).

The acceptance, by Tasmanian Catholic primary schools, of the NSW English and Mathematics syllabuses for structuring the curriculum in these two key learning areas was mentioned by all respondents in a favourable manner which include the following statements: "Everyone likes the cohesiveness of having the NSW syllabus for Mathematics" (Respondent 1) and "Staff are enthusiastic about being given this direction and it takes the pressure off them for the right reasons because they get on with the job of teaching (Respondent 3) and "We are fortunate in the last couple of years to have purchased the NSW curriculum documents so that's been a better guide as regards constructing what happens in the classroom" (Respondent 20) and "they (NSW syllabuses) are very prescriptive and it tells me what a student in my grade should be working toward."

An Assistant Principal (Teaching and Learning) expressed disappointment in attaining curriculum rigour that allows for comparative studies and evaluation:

> *Can you explain how your classroom curriculum is constructed?*
>
> Um...some of us follow the national statements and profiles, so when we plan we look at the topic selections in key learning areas such as with SOSE with Place and Space, etc. Others teach what they have taught for a number of years and perhaps reflect on the national profiles to justify what they have always taught. Some are not following anything, they are teaching what they think should be taught, what they remember being taught at this level and there is very little overall structure of what should be taught; they teach what and how they have been taught (Respondent 4).

A teacher of 30 years experience illustrates the strong theme that emerges from the conversations regarding uniformity of the curriculum, or lack thereof, when she states, "We do things our own way in our school, like in any school and everyone gets their own bits and pieces" (Respondent 21).

Table 7 outlines important variables that were included as reference points in this study. The research endeavoured to ensure there was a diverse group of teachers representing a broad spectrum of the profession. The information allowed the researcher to recognise any trends or patterns that may have skewed data formation from the outset of the study.

	Most recent involvement in tertiary studies				School size			Weekly use of a computer in hours			Years Of Teaching Experience				
Respondents	Less than 2 years	Between 2 and 5 years ago	Between 5 and 10 years ago	Greater than 10 years ago	Small rural (between 90 and 150 students)	Small urban (between 90 and 150 students)	Large urban (greater than 150 students)	Between 2 and 5 hours	Between 5 and 10 hours	Greater than 10 hours	Less than 2 years	Between 2 and 5 years	Between 5 and 10 years	Between 10 and 15 years	Greater than 15 years
1	0	0	1	0	0	0	1	0	0	1	0	0	1	0	0
2	0	1	0	0	0	0	1	0	1	0	0	0	1	0	0
3	1	0	0	0	0	0	1	0	0	1	0	0	0	0	1
4	0	0	0	1	0	1	0	0	1	0	0	0	0	1	0
5	1	0	0	0	1	0	0	1	0	0	0	0	1	0	0
6	0	0	0	1	0	0	1	1	0	0	0	0	0	1	0
7	0	0	0	1	1	0	0	0	1	0	0	0	0	0	1
8	1	0	0	0	0	1	0	0	0	1	0	0	0	0	1
9	1	0	0	0	1	0	0	0	0	1	1	0	0	0	0
10	0	0	1	0	1	0	0	1	0	0	0	0	1	0	0
11	0	1	0	0	1	0	0	0	0	1	0	0	0	0	1
12	0	0	0	1	0	1	0	0	0	1	0	0	1	0	0
13	1	0	0	0	0	0	1	0	1	0	0	0	1	0	0
14	0	0	1	0	0	0	1	0	1	0	0	0	0	0	1
15	0	0	1	0	0	0	1	0	1	0	0	0	1	0	0
16	0	0	1	0	0	1	0	0	0	1	0	0	1	0	0
17	1	0	0	0	0	0	1	0	0	1	0	0	0	0	1
18	1	0	0	0	1	0	0	1	0	0	0	0	1	0	0
19	0	1	0	0	1	0	0	1	0	0	0	1	0	0	0
20	1	0	0	0	1	0	0	0	0	1	0	0	0	0	1
21	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1
22	1	0	0	0	0	0	1	0	0	1	0	0	0	1	0
23	1	0	0	0	1	0	0	0	0	1	1	0	0	0	0
	10	**3**	**6**	**4**	**10**	**4**	**9**	**6**	**6**	**11**	**2**	**1**	**9**	**3**	**8**

Table 7 Variables influencing teacher-created curriculum design

4.1.3 Teacher response to the Essential Learnings framework

Over half of all respondents referred to the *Essential Learnings* framework in a positive manner, especially in the context of providing a positive philosophical framework to scaffold the content

aspects of supplementary documents that were already used by the teachers including various Tasmanian curriculum documents, mainland states' curriculum documents and the various national statements and profiles. Fourteen of the 23 respondents explicitly made mention, usually on a number of occasions, of the benefits of finally having a curriculum document that, "allowed teachers confidence and freedom" (R5) and that "overall, what has come from it (Essential Learnings Framework) has been good for children and teachers" (R3); and the fact that, "It does question how and what you are teaching, which is a good thing" (R6); and that "it involves a deeper thinking of things" (R13). The inherent strength of the *Essential Learnings* framework appeared to be recognised by 19 of the 23 respondents and centred on the onus on teachers to improve their teaching. Many, including Respondent 22, an Assistant Principal who has taught for 15 years, view the *Essential Learnings* framework as providing useful philosophical grounding because, "rather than look at the content, it (*Essential Learnings* framework) gets teachers to look at the inquiry base to learning. I think that it's been really valuable for our school and it's certainly improved my teaching" (R22).

The expressions of 19 of the 23 teachers were tempered by the disappointment apparently felt by all respondents who, whilst generally enthusiastic about the fact that there was finally a centralised directive with regards a curriculum reform, the initiative was lacking in substance; the Essential Learnings framework "went too far and I think they had to come back to some middle ground, to reflect on what was happening in schools, because they didn't give teachers anything to hang their hat on" (R1).

The perspective of intellectual compromise of any initiative in curriculum is also expressed by the following conversation with an experienced Assistant Principal (teaching and learning):

How do you feel about the *Essential Learnings* framework?

...Um...can I be honest?...(pause)...I'm trying to think of a way to say, 'Rubbish'. I think we're coming from the background that core knowledge is more important than vague concepts. It's based on the fact that teachers can do whatever they want with no appreciation of what has come before, no real scope and sequence and no awareness of what came before and what will happen the following year. It's a little subjective and open to interpretation. The fact that a teacher can walk into a classroom and design what they will teach without being given firm guidance is open to a lot of interpretation and the money that has been spent on it, well that is another story. It's all the buzz words and feel-good words and I suppose that's why many people starting raving about it because they used these buzz words and not a lot of good came of it and I don't feel anyone in our school is really using it (R18).

Teachers appeared desperate for a curriculum initiative that would provide clear and unequivocal guidance on not only the content outcomes expected to be taught for a particular year level, but also the indicators expected within a grade cohort that would align with the commonwealth government's reporting structure. Teachers who have had experience with other state curriculum documents were derisive of the Essential Learnings framework because of the lack of guidance and support in the content area of curriculum design as expressed by Respondent 12:

> It has some issues but it has some good underlying principles but it I don't think it is a good framework for what it was intended. I don't think they've thought it all the way through but that is because I'm used to the Victorian Curriculum Standards Framework which is a curriculum framework which is a curriculum based document that clearly indicates where a child is achieving this but no, we're not achieving this and this. But the *Essential Learnings* document is a pedagogy of ideas and it's great from that point of view and I know some parents who have received *Essential Learnings* reports from the state system

haven't got a clue what they were reading whereas the reports we sent home in Victoria was easier to read and parents could understand it exactly because it reflected a curriculum area. It's not a reporting document but it's a good philosophical document. It's got a lot of teacher jargon.

Another teacher who had experience teaching in another Australian state that had a content-rich curriculum stated, when asked about any feelings associated with the *Essential Learnings* framework that:

> I guess I'm confused, yes, I'm confused because I did all my training using the national statements and profiles and that was great. We learned about content and pedagogy. When I came here I had to get my head around planning using *Essential Learnings* with the national statements and profiles supporting it and just as I was getting my head around it all the press in the media against *Essential Learnings* made me feel very much in limbo; I started wondering what I was doing and what we were all about (R1).

This feeling of uncertainty in applying a new curriculum framework was common in almost all recipients, regardless of gender, age, experience and pre-service training. Such feelings, although potentially damaging to the effective delivery of any curriculum reform, were also almost unanimously tempered by an appreciation by teachers of the philosophical intent and general overview that *Essential Learnings* now provided, as explained by the same respondent:

> I like the values and I like document but not as a stand-alone curriculum because I feel that the key learning areas like English and Maths were definitely not catered for and given sufficient depth. I was very pleased that the CEO are taking up NSW Maths and English syllabus because I feel that it is more specific to grade levels and the NSW curriculum is very clear about

> expectations for specific grade and year levels these areas are huge. The *Essential Learnings* document is good in giving an overview of being numerate and being literate, but it couldn't provide the depth and specific and it's just not specific enough for schools and especially with the media about the nation saying kids aren't getting to grade 3 having learned to read and write. I feel we really need something strong to support *Essential Learnings*. Now politicians and ministers are saying *Essential Learnings* is changing and I fear they won't listen to teachers who use *Essential Learnings* on a daily basis, which is a shame because they are the ones who have to work with it (R1).

Eight out of 23 teachers interviewed supported the view experienced by Respondent 13 in the following response, all of whom made explicit reference to *Essential Learnings* lacking a content-rich aspect that this group felt intrinsic to a workable curriculum initiative:

> I quite like the idea of Essential Learnings but you can't escape the rumblings from a lot of teachers about it such as, "It's just a rewording of what we've always done...(pause)...it's full of jargon...we covered this 20 years ago...it's too wordy...the politicians' comments that it will be scraped". I do like the fact that it involves a deeper understanding of things (R13).

Respondent 4, summarises the view that was explicitly expressed by 9 of the 19 teachers interviewed by stating "there is no concept of essential knowledge in the (*Essential Learnings*) framework. There is no guarantee that the child will have what we would term, 'General Knowledge' and 'Critical Ideas' before they hit high school. It's too dependent on the individual teacher's fancy". Doyle & Ponder (1977) referred to the `practicality ethic' of teachers, which implies that teachers only integrate and incorporate those aspects of educational change that are readily accessible and to them and are harmonious with the existing or successful classroom activities and discard those reforms or elements of reform that are

perceived as impractical. This concern for providing a curriculum that has intellectual rigor tended to be exacerbated by the negative press coverage and general uncertainty felt by the public of *Essential Learnings,* which expressed itself through damning statements by politicians and teacher unions and is expressed by Respondent 1 who states:

> I love the idea of a national curriculum. I'm moving to Perth and I really like their curriculum framework but if doctors move a state they don't have to relearn the basic concepts underpinning their job but teachers do. So basically, I'm confused. Basically, it's got worth and it could be great and lots of money has been spent getting our heads around it but is it sustainable; are we going back to national statements and profiles and KLA? (R1)

4.2 Post-structuralism – power structures influencing curriculum reform

This section will investigate underlying and associated power structures that have influenced the nature of teacher discourse related to curriculum reform, with a particular emphasis on the interpretation and implementation of information literacy by teachers. There is an intent to address research question two, which is stated as, *What do teachers discuss when engaged in curriculum reform especially in relation to information literacy?*

4.2.1 Knowledge as power

18 of the 23 respondents in this project were adamant that it was possible to differentiate between information and knowledge. Three teachers were unsure and two felt unable to satisfactorily answer the question and one, an early childhood teacher, was firm in the conviction that knowledge formation was not really the domain of the early childhood teacher by stating that the literacy basics that allow for information engagement, which leads to

knowledge formation in the formal sense, is a crucial responsibility of early childhood educators:

> *Do you think it's possible to differentiate between knowledge and information?*
>
> At this age group I'd think it was fairly tricky. But information is something we are seeking, we need to know, we are trying to find it whereas knowledge is something we already have.
>
> *Do you believe that the children have the skills to create knowledge*
>
> At grade 1 or grade 2 level?...(pause)...Yes I think the Year 2 children have an awareness of knowledge, yes at year 2, certainly. You could set them a task to create an information poster. They would process information and then they could create a poster, which is to create something new or call on prior knowledge. Teachers feel pressured to meet outcomes and, in an ideal world and as children get older, it would be great to set them tasks with open-ended activities. We really have a lot of basic learning that we need to cover, especially in foundational, early years. So, as teachers, the creation of knowledge is in the back of our minds but we can't set aside the time for creating and exploring, more experiential learning. I'd say it's middle to upper primary but the early childhood educators can work to create an awareness of information literacy, which reflects their basic literacy competencies too, but if they can't read the information, then part of information literacy is denied.

Five of the six teachers who were early childhood educators made explicit mention of age as being a key factor in a student's abilities to engage with information as it pertains to the creation of knowledge. This compared with all teachers in Years 3, 4, 5 and 6 making explicit reference to the need on their behalf, of providing a resource-rich learning environment for their students, with many teachers using the word 'exposure' when discussing the question regarding whether children can create knowledge as exemplified by the following snippets from the transcripts:

> I guess it has a lot to do with exposure. If they are not exposed to literature or visual information that is symbolic rather than a literal meaning then they will never pick up on the capacity to gain knowledge or to have ability to come to their own conclusions (Respondent 22).

To some teachers, the concept of knowledge being distinct from information was not clear, or an issue that they had spent much time reflecting on. One teacher was satisfied that knowledge was created by stating "if they (students) can remember things or tell you things, even smaller things, that they have remembered" (Respondent 19). It is important to gain an understanding of how many of the teachers responded to questions regarding a definition of knowledge in this section, to provide a clear focus of the interpretation of knowledge by the profession whose daily role, many would argue, is its dissemination. Respondent 22 states, "knowledge is putting together what is there and putting it in context", which is complemented by Respondent 13's comment:

> I have some clever capable kids and they actually get through to each other a lot better than me because I'm coming from a higher level and they are missing the connection whereas two little people having a conversation or a chat about something they get it faster than what I could achieve.

Respondent 15 summarises very articulately what he considers essential in knowledge creation by stating:

> Your knowledge grows as you gain more information but it is dependant on what you personally make of the information and its relevance. Your knowledge depends on personal processing and how much you take on board is dependent on that processing which is dependant on your purpose (Respondent 15).

One teacher, when asked about whether teachers program to allow for knowledge creation by students stated "yes they'd be guided and there is a lot of design and far more scope for invention in the curriculum now. Teachers have to use their energy to empower children and a lot more is expected from parents and the community" (Respondent 14). The need for curriculum reform became a significant theme for virtually all respondents, with the following statement summing the arguments quite poignantly:

> In Maths, its more black and white and you can teach facts; there is a right and wrong answer. Although they need to know facts for SOSE, they need to provide reasons and they are walking away from primary school with less basic knowledge because it is not being taught because it has not being mandated. They are leaving primary school with the level of basic skills that they would have been given 10 years ago. Many children can't analyse and deduct because they need more information to begin with to synthesise and delve deeper and although the confident and competent student can deduct well but I don't know how this skill can develop without information, without facts and the delving deeper. You can ask the 'Why' and 'How' questions. You can give children a lot of knowledge and content but I wonder whether these children aren't able to process the information and take it in. Mathematics is easier because you teach a skill that gives a right or wrong answer, although they do need to give facts in SOSE but they also have to give reasons, It could be a fault of how we teach these skills to acquire knowledge it could be the time of the day we teach it. Basic skills are being left behind (Respondent 4).

The empowering nature of being knowledgeable was apparent in conversation with many teachers. One teacher really articulated this important aspect of knowledge creation by stating:

> A lot of my kids are still at the developing stage, I think only 30% would be confident creators of knowledge. An indicator I would look for would be whether they make a personal response in that before they can own or understand knowledge they need to understand and empathise with the information. The kids who create knowledge own the information because they can do something with it; it empowers them to want do something (Respondent 1).

4.2.2 Transcience of knowledge

One respondent of 40 years experience made a remarkable response when in conversation about whether she thought that it is possible to differentiate between knowledge and information by stating "well yes, but it's tricky isn't it? I mean information can be fraudulent and knowledge changes, knowledge is liquid" (Respondent14). One principal highlighted this aspect of a wide and varied information base by stating:

> If a child brings something in from home there is a starting point from the child's own real world, whether it comes from the media or from the local environment ort any other source and provides a valid child-centred information resource and it reflects the individual teacher's strengths, even using parents; I think the information resource base is huge and it can be extended (Respondent 3).

The notion of knowledge possessing power in the poststructural sense was not an obvious response by teachers interviewed in this study. Most teachers intimated or explicitly stated that they were looking for direction in curriculum delivery, especially in the area of a commonly accepted content aspect to curriculum. Teaching strategies and the philosophy surrounding productive pedagogy appeared well catered for by professional development. However, this common call by teachers for an agreed upon content base for their curriculum emphasises the subtle understanding that knowledge

in an information age can be transient and, therefore, there is a need to teach students to be effective knowledge creators by teaching them to be information literate.

4.2.3 Commodification of knowledge

There was a strong notion among respondents that information, when presented as knowledge that has a function or explicit purpose, whether it be to pass an exam or impress a person for a reason, has merit; respondents appreciate that teaching and learning programs recognise the need to 'commodify' knowledge at times. Knowledge for a purpose usually implies locating the information that provides understanding. However, most teachers interviewed stated quite unequivocally that their students were not able to locate suitable information sources, or time constraints, class size issues or access to technology factors prevented students from developing self-efficacy with this aspect of information literacy. Knowledge, then, became the domain and responsibility of the teacher, rather than a student-centred, constructivist process. Such a perspective is echoed in the words of one teacher who stated:

> Information is involved in locating the facts that can be found out there whereas knowledge is what you can do with the facts... My initial searching of the Internet provides the focus and links and this provides the structure for the children to access information (Respondent 16).

With more information being made available via technology than in any other medium, it is imperative that accessing information through this medium is taught as a process-oriented skills program. However, not only are there infrastructure issues for most teachers, there also appears to be an element common to many teachers who find student accessing information sources online via the Internet is not time-efficient compared to the more traditional approach of providing books. This is portrayed by the following conversation:

> I have given them the sites because some take forever in the search process and they become negative because they realise that the task involves skimming and

scanning which involves work, not just 'playing' with the computer...They come to class with those skills, I didn't teach it to them and I trust their skills although, when I wanted to teach them bias I chose those sites because free reign on the computers with some of the boys often results in a huge waste of time even if I give them parameters. They generally know how to use the Library and the librarian has done a good job in telling the kids where the goods books are and how books are organised according to Dewey and where encyclopaedias and dictionaries are, but perhaps I have shown them where to locate the information. The problem is finding texts at their level because a lot of them will give up if they don't get any success. It's easier for me to guide the children in a print form rather than the electronic form. I have to be really careful of the questions that I set, because once they are online they can be there forever" (Respondent 4).

It became apparent that, for many teachers, there just wasn't enough time in the day to create teaching and learning environments that would allow the time that students require in order to create knowledge from a variety of information sources and formats. Respondent 19, a teacher of less than five years experience lamented this lost opportunity:

I'm probably not 100% sure how I give the children information because I'm more of a chalk and talk person and I know a lot of people talk about the teacher providing the opportunity for the children to learn or to find out information for themselves and then do it independently but over the last few years I feel that they need to be told things and shown things explicitly and I've found that they just don't have the capability themselves to learn independently and I think they need to be really capable and independent if they are to learn themselves. Which is I suppose what we are trying to do, get them to do things for themselves but it's a real struggle. It is certainly an age factor, and you

certainly couldn't trust the younger classes to search information without a lot of assistance. I know we should be developing this independence in accessing information independently but it's also a maturity thing too because so many of them find it hard to keep on task. I don't believe it's a gender aspect though. People say you shouldn't act as providers; instead give them the opportunity to learn information or a task and let them go but I feel that I'm the teacher and I don't think I'm doing my job if I don't plan the task and provide resources for them. I'm supposed to be imparting information to them. I provide them with the resources and checklists so they have everything provided to complete the task (Respondent 19).

It is important for teachers to view knowledge as more than a commodity that is, in itself and by virtue of human endeavour, an end product or as an artefact that "can tell us as much about the process by which it was formed as about the thing itself" (Burbules, 1997, ¶13). Unfortunately, with an ever-widening curriculum and demands being placed on schools to meet benchmarks in an increasing diverse range of standardised tests, many teachers felt that they were obliged to teach the facts and there were a number of teachers using the Mathematics key learning area as an example of a subject that was 'easy' to teach because there were no grey areas, no areas needing contextualisation and the need for information gathering. The following conversation with a teacher of 20 years experience illustrates the dilemma facing teachers who align with knowledge as a commodity that is an end to itself rather than a means that involves ongoing processing:

Do you think it's possible to differentiate between knowledge and information?

Well I think that this idea that you don't teach facts is wrong. You can always ask the question 'why' but there are times when you have to know when to act and this is what you need to know, don't question me. Its like in maths, you can teach some skills about getting the answer a number of ways and try to

understand the investigation but there are times when you shouldn't question the teacher. This is what you need to know. Sometimes we go the other way. In maths we can use a formula, which is correct all the time and can give the correct answer you don't always have to know the formula. There are times for both strategies.

4.2.4 Information literacy as a means to teach discernment and judgement

The skills inherent in information literacy are lifelong learning skills and there were assumptions made by many teachers that such skills were taught already within other key learning areas, but not in a structured or explicit manner. One grade three teacher at a small urban school emphasised the lack of skills that his students had when challenged to engage with information literacy tasks when he said:

> I left the investigation up to the kids to come up with what they could find. They had to turn on the computer and do everything on their own. Out of 10 kids, only three could actually find a web page but I don't know whether they could understand the information on the page. This exercise was like a test to give me an idea of what they could do without me. Because of that it is obvious that we need to do more on teaching the kids to be able to scan and skim and get an understanding of what the text is all about... There is obviously a need to explicitly teach information access processes. (Respondent 16).

Teaching skills of discernment and judgement in a purposeful information engagement should be a key goal for any teacher and it is intrinsic to the nature of any information literacy program. All teachers agreed that the skills of discernment and judgement are important for an effective curriculum, yet, most teachers interviewed did not feel that they were explicitly teaching or creating a learning opportunity for their students to engage in discerning information sources in a quest for knowledge as illustrated by the following conversation:

It what ways can learners develop and display discernment, judgement and discrimination when accessing information in the global scale.

I thought the kids would be able to be more discerning but I have discovered that they need a lot more guidance and explicit teaching and I am aware that I need to do this; I'm not currently teaching these skills. The skills we need to teach need to be very specific. The kids seem to focus on information that they find exciting and interesting but it may not be relevant to the task. There is a need for us to make the children more comfortable with the different mediums more regularly and this will make them more comfortable.

4.2.5 A community of uniform practice?

The analysis of interviews conducted as part of this thesis will determine whether there is a need for further investigation to ascertain whether information literacy is being interpreted by Tasmanian teachers and implemented in classrooms within the context of a community of practice. One teacher encapsulated the need for information literacy to be given far more significance than it currently enjoys by referring to the need for educators to ensure students have the skills of discernment and judgement when using information; skills that are needed to be explicitly taught in a variety of contexts:

It what ways can learners develop and display discernment, judgement and discrimination when accessing information in the global scale.

Yes, we looked at something yesterday when we were on the computer and examining statistics, and we looked at all the temperatures listed for Australia from the Bureau Of Meteorology. The situation was, Hobart's temperature was very high and the question posed was, "Do you think if this information was presented to children overseas would they think it was correct or unusual and how would they be able to decipher the information?" Because we find the

particular high temperatures unusual do you believe the information is accurate or what message does the information send to others who aren't as informed as us? The message was that not all information we are given is always correct or true so we need info from a number of sources and we need to get them to analyse and deduct and incorporate higher order thinking using Bloom's taxonomy (Respondent 10).

It was interesting to note three of the five principals spoke highly of their school's attributes that would have confirmed them as strong communities of practice. However, statements by staff were contradictory and instead spoke more of, "gaining this (view of others' abilities and practices) by observing" (Respondent 9); "I don't think there's much dialogue between grade levels. I listen and observe" (Respondent 16); "I'm aware and it's probably through chatting; we really don't meet" (Respondent 10); "I don't know how other people use computers to be honest but it doesn't really concern me" (Respondent 21); "We do try to help each other but it's hard in a small school to find the time to talk and get together" (Respondent 12); "To be honest with you I wouldn't know how much any teacher is using computers or what they are planning. I mean it would appear by the example of how each class is computer savvy at the beginning of the year compared to previous years"(Respondent 13); "I wouldn't know what the student I will be getting will be competent with...I know what my core group is doing but I'd not know what others are doing" (Respondent 15).

Teachers who were interviewed as part of this study were asked several questions that relate to an undertaking by the school in ensuring there exists a supportive community. Implied in the definition of 'supportive', is the need for all staff to be included in decision making and for all involved to be adequately informed participants, rather than being mere observers of incidents that are not meaningful for or to them. When describing situations that lead to

familiarisation of the techniques that other members of staff use with ICT that enhances information literacy, there were significant incidences of terms such as, 'observe'(4), 'don't share'(6), 'conversational'(3), 'no formal meeting structure' (16), 'no opportunity to talk' (3), 'listening' (4). One teacher concluded our conversation quietly, as if contemplating his words for the first time and reflecting on their significance by stating, "I really don't know how any other teachers use information communication technology to enhance information literacy" (Respondent 23).

Even though the question related to how familiar the person was with how other teachers are using computers to enhance information literacy, the following extract of a conversation with a teacher in a large urban school, who has 20 years experience typifies the responses of the vast majority of teachers interviewed when she stated "We really don't talk about what we do with computers as a staff; we all do our own thing really and are left at that" (Respondent 6).

All Catholic primary schools within the Hobart Diocese have agreed to use the NSW Mathematics curriculum documents to deliver a common curriculum. Some schools have also decided to use the NSW English curriculum documents, however, other schools are using elements of Western Australian *First Steps* material, and still others are examining the new Tasmanian Curriculum: English-Literacy K-10 syllabus and support materials (Department of Education, Tasmania, 2007a). The general appreciation, felt by the respondents, of the NSW documents to shape the teaching and learning in Mathematics and English was somewhat tempered by some concerns regarding the lack of collaboration still experienced by some teachers as the schools were involved in integrating these documents into their own programs as inferred by Respondent 4 who stated,

> We have adopted and are integrating the NSW Mathematics and English curriculum documents and each staff member has a copy of those, but I don't

know what anybody is doing with them... They are full and explicit. The leadership team has seen that there was a need to provide for more structure and discussion about this implementation to ensure sequential learning in some areas. There has been a lot of discussion because the leadership team has seen that there is very little evidence of sequential learning

(Respondent 4).

A principal of a large urban school's following comments were reflected and confirmed by the staff at the school and supports the view that for most schools, communities of practice do not exist: "Teachers are not really aware of others' computer use, only via discussion in an informal sense; there are no structured meetings to discuss information literacy (Respondent 17). An Assistant Principal of a small rural school confirmed the principal's observation and highlighted the need for schools to focus on meeting to discuss a whole gamut of curriculum and school-wide agenda items and ICT, recognised as being intricately associated with information literacy, is rarely on the agenda:

> No, I don't think there is a sharing environment but it's not that people aren't willing to share, it's just that other areas of the curriculum comes before this and with few exceptions, until fairly recently, computers haven't been used...there isn't a sharing environment (Respondent 18).

4.2.6 Professional development

A number of schools were represented in the sample, each being involved in a variety of professional learning practices. Since the advent of the Essential Learnings Framework in 2003, some schools were given professional development by in-serviced staff members on Essential Learnings and became known in the Catholic system as 'ELS schools'. Other schools were given professional development in general learning theory and productive pedagogies that use the inquiry-based approach to teaching and learning as advocated by O'Brien (2001), Murdoch

(1997; 2004) and Blythe (1998). During interviews, some teachers who had moved between Catholic schools noticed quite a difference in curriculum implementation that reflected the diverse professional development foci. This is expressed by one teacher who stated "I feel teachers who have been in-serviced in the Pedagogy Cluster have gained more than being in-serviced in the Essential Learnings Framework Cluster. The pedagogy focus has been more productive than being singularly Essential Learnings focused" (R 3). Professional development needs to be singularly focused if communities of practice are to ensue and avoid a conflict of curriculum intent, as expressed by the following respondent who stated:

> A lot of it was left up to individual schools to interpret Essential Learnings and apply the principles. There was no design given to staff to follow it as a curriculum so many (staff) were, and remain unsure because they haven't informed us sufficiently. It didn't help curriculum design (R4).

4.2.7 School as the focus environment for professional development.

Much of the professional development in curriculum reform with regards implementing the *Essential Learnings Framework* and the *Statements of Learning* have been the responsibility of individuals, usually the Assistant Principals (Teaching and Learning). Being given minimal guidance in reform processes, coupled with the difficulty in interpreting and consequently communicating a complex framework, these staff members were confronted by teachers who were overtly frustrated and in some cases, hostile to change that appeared to have no real uniformity and direction from the Catholic Education Office in Hobart. This frustration is expressed by one teacher who stated: "The implementation of it (in school professional development in the *Essential Learnings* Framework) was designed to be structured but it became so complex that the structure of it fell apart. I know initially the structures were put into place, but along the way it fell apart. It was school-based and personnel changed which didn't help" (R13). Teacher perceptions of professional development can be gauged in Table 8. It can

be quite clearly comprehended that there exists elements of strength and 'promise' in the high use of terms such as ''adequate' and 'collaboration', there exists areas of concern given the high responses in all three cohorts of terms such as 'confusion or unclear', 'lack of uniformity, influence or direction' and 'no guidance or value'

	Self-motivated	Overwhelmed	Lack of structure and cohesion	Lack of mandatory attendance	Inadequate	Adequate	No guidance or value	Overwhelmed and concerned	Confusion or unclear	Confused	Experts in the field	Poor delivery of the framework	Collaboration and cohesion	Fear or confusion	Lack of uniformity, influence or direction	Collaboration
School size = Small rural (between 90 and 150 students)	1	2	4	1	5	3	5	2	6	4	2	1	2	1	3	4
School size = Small urban (between 90 and 150 students)	1	0	0	1	1	2	2	0	3	2	1	1	1	0	2	2
School size = Large urban (greater than 150 students)	2	4	3	2	5	5	7	2	4	4	3	5	4	3	9	9

Table 8 Teacher perception and feelings associated with professional development in curriculum reform relating to ICT

The aspect of receiving professional development appears crucial in any aspect of curriculum development (Ingvarson, Meiers, & Beavis, 2005). Fourteen of the 23 respondents made explicit and negative comments regarding the level of guidance that was received in developing programs of teaching and learning and concomitant reporting regimes related to information

literacy. Respondent 2 responded to the dearth of professional development in information literacy by becoming self-taught in being information literate:

> I didn't mind because I'm easy going, but I felt for teachers who were worried because there really was no professional development so I knew that I had to gather data to prove to parents that I was teaching it (information literacy). I researched the term by searching the Internet, gathering books and asking other teachers, but I do believe that the Catholic Education Office should have provided more guidance on the term" (R2, ¶49).

A respondent from one of the three schools out of the seven involved in this study also claimed to have had to undertake independent, unguided research in defining information literacy and seemed surprised at the amount of definitions that abound describing the term and that it has apparently "been around for a long time."(R14).

Conversations with teachers from large urban schools established a very strong correlation between the size of the school and collaboration (see Table 8). All nine respondents from large urban schools made positive, explicit mention of collaboration amongst staff in curriculum design with the following extract from an interview highlighting the effectiveness of ensuring staff are gradually exposed to and engage in collaborative teams that meet regularly for a purpose:

> In the initial stages it was very much delivery of ! ""#$%& () *#'+$&$, ", discussing points like, 'this is what is it is about", and taking you through it, its philosophy and structure. But more recently it is planning with ! ""#$%& () *#'+$&$, ", which is a lot more beneficial. Now we are meeting once a month and collaboratively plan for one hour integrated planning using ! ""#$%& () *#'+$&$, ", which is good (R2).

The nature of collaboration appears to be transferable between schools, regardless of their location and size, and it is the cooperative nature of collaborative planning that 15 respondents identified as being beneficial and to be aspired to in any school curriculum design program, as expressed by the following respondent in a large urban school:

> *Can you explain how your classroom curriculum is constructed?*
>
> ...Well it's very much constructed on an individual level. Over the years it has changed but when I first started, and remember, I've been teaching the same grade for seven years, I basically took over what the previous teacher did and then I added some units and ideas myself so I did have input into the structure myself but I basically followed on from what happened in the previous years. But, saying that, I realised that I could have thrown all that out and come up with my own curriculum. However, over the past few years with *Essential Learnings* and collaborative planning we are more aware of the whole school approach to learning and more aware of what other classes are doing and there was a time when we all got together and soon became aware that some classes were doubling up so it's been an ongoing process and now because we are more aware of what others are doing, due to Essential Learnings, cooperative planning and professional development we are becoming less individualistic about what we do, pairing off with a grade or as a whole school and developed, gradually, more collaborativeness (R13).

Respondent 15, a teacher at a large urban school emphasised the strengths of collaboration by stating "there is a lot of collaboration. We meet fortnightly and the whole thing is evolving, the meetings are relevant and productive; we meet to set our goals and outcomes" (R15) and an Assistant Principal at a large urban school further reinforces the support for collaborative teaching by stating "myself and my partner-teacher have taken it on board and it has certainly improved both our teaching and we are getting much richer units plus all the other benefits that

come from collaborative planning" (R22). A principal of a large urban school reinforces the acceptance of collaboration amongst staff in the school and states:

> *Can you explain how your classroom curriculum is constructed?*
>
> We are going through a shift so I'll talk about what is, rather than what was or what we are aiming for. We have gone for multi-grades so have set up collaborative teaching teams that involve and allow two teachers working together to plan for their team on a two year time frame or cycle and that helps design a curriculum for key learning areas like SOSE, Science, Health, Performing Arts, enquiry-based learning. And then numeracy and literacy is for where the kids are at their respective times, following a scope and sequence. We are trying to get some consistency so there is structure and we are trying to design something as we do it. We are involved in teaching a large, six week long enquiry-based unit a term and we have a whole school focus and under the topic described, the teachers would design units based on generative topics which offers more independence on behalf of the teachers.

Approximately half of the teachers who were interviewed in small rural and urban schools stated that, whilst collaborativeness was not a strong feature of their school's curriculum design, they could affirm that, "We need to develop more specific statements and have more conformity and collaboration" (R11).

The notion of teacher collaboration in the midst of great uncertainty of curriculum design choice was expressed by a principal of a small urban school:

> *Can you explain how your classroom curriculum is constructed?*
>
> We are developing our curriculum at the moment and we are looking closely at other states' documents drawing from many documents. Our school is using

scope and sequence based on National Statements that we developed at school. We are following the NSW Mathematics and English documents and aligning it to our school and we are looking really closely on what our kids are experiencing to ensure there are no gaps, especially in maths and literacy. It's not really a top down approach although the national statements was top down; it's in the middle at the moment. I'm not sure if the existing staff feel that it's top down but really, it's more collaborative and they all come from a different place with their interpretation of the curriculum and everyone contributes (Respondent 8).

4.2.8 Influence of new reporting mandates

As part of the commonwealth government's desire for a national curriculum, every state was required to report on common key learning areas and, for the first time, information literacy became a reportable and therefore an accountable and obligatory element in the reporting regime in 2006. It was located as part of the English key learning area and schools were given the discretion as to whether they would report to parents on this outcome throughout the year. Most respondents expressed confusion and concern with regard to being obliged to report on information literacy, with the most common expression being related to a lack of guidance as to a definition of the term and clearly and commonly agreed upon elements that teachers could use to make judgements regarding a student's level of proficiency in the area. Thirteen of the 23 respondents made explicit mention of being confused as exemplified by an Assistant Principal of one school who stated that "there was a lot of confusion because a lot of teachers were confused and questioned the term because we have had no professional development in the area". (Respondent 2).

It appears that information literacy only became a teaching focus for many teachers because they were obligated to report on the skills inherent in the process due to the commonwealth

government's reporting framework for all Australian schools. Research agrees that 'teaching to the test' does not result in knowledge creation that is easily transferable and lifelong (Anagnostopoulos, 2005; Higgins, Miller & Wegmann, 2007). This is highlighted by the following statement by a teacher of over 30 years experience who says:

> The expectations of our reporting system, based on A to E, means that your curriculum needs to be constructed on the basis of what criteria are found on your report. You take the criteria and then you have to design activities and lessons, which give you evidence to prove children are meeting the criteria. (Respondent 21)

It became quite apparent to the researcher that most teachers felt quite intimidated by these new reporting mandates. A likely reason alluded to in conversation with many respondents lies in the lack of conformity of curriculum as expressed in common school teaching and learning programs. An Assistant Principal expressed this absence of conventionality by stating "I soon realised that you could either use or not use our school-based curriculum because there was no real conformity among staff or firm direction. You could walk into any classroom and there would be lots of different documents used" (Respondent 18). School curriculum documents did not emerge as material from which authentic planning for classroom teaching and learning can be sourced. This is reinforced by the following statements by two principals interviewed: "In reality, to be blunt, we don't really draw from our established school documents that were designed when we were up for registration, and they were never looked at" (Respondent 17); "We certainly know that the curriculum documents that we parade as our school curriculum are inadequate" (Respondent 20). Respondent 22, an Assistant Principal, highlighted the concern felt by curriculum leaders when stating "as a school, I really don't think there is a school-based curriculum in place. People are still doing their own thing and we still haven't got scope and

sequence organised." This is supported by Respondent 18, also an Assistant Principal, who stated:

> Seven years ago, when I first arrived, there was a curriculum that had been designed as part of registration and it had a sequence for each grade, which I initially used. But I soon realised that it was just a document and it wasn't comprehensive enough. I also soon realised that you could either use or not use it because there was no real conformity among staff or firm direction. Now we are tending to rely on other state's documents and the structure is still not there for us as a system or school. There is no real obligation.

All teachers associated with the large urban school cohort identified a lack of uniformity, influence or direction with regards their sense of curriculum ownership. The concern appears to lie with the nature of the supporting documents from which to create any curriculum, which is supported by Respondent 2 who states "at the moment we are doing a lot of work on our curriculum but there is a bit of confusion because what documents do we base them on?" This view is shared by Respondent 6, a teacher of 20 years' experience from the large urban school cohort with her statement that:

> I don't blame the school; I think I blame Tasmania in general. I mean if you look, there is no curriculum and it's only in the last year that they've only started saying that we need to develop a curriculum and hence we are now using the NSW curriculum, which, to me, makes sense because it's a waste of time reinventing the wheel; why put so much money into that area if it's already been done?

It is interesting to pick up on Respondent 6's use of the term, 'they' in describing or alluding to an authoritative directive in curriculum design, yet concurrently, stating quite unequivocally that there really has been no curriculum direction in her career of 20 years. Respondent 3, a principal supports this common view expressed by the majority of teachers interviewed when he

stated "in recent times we are now needing to be following the NSW curriculum and this has been welcomed with open arms because it provides a necessary curriculum framework that has been missing". Respondent 3's use of the words, 'needing to' reinforces Respondent 6's prior statement that alludes to an acceptance of curriculum direction from 'above', especially when being faced by the need to create a curriculum that has not being given a focus. The issue of teachers 'owning' their curriculum is overshadowed by their need to have practical and authoritative guidance in curriculum design, an aspect of their teaching that many do not feel suitably proficient with as expressed by Respondent 3, a principal, who states,

> Teachers can now say, 'That's great. Now we know that can work (NSW Syllabus) and we can work with that as a guiding light'. I think teachers are there to teach, not to create their own curriculum. Teachers are not professional in that way. Not that they can't do it, but teaching in a classroom, well it's just that it is not realistic, especially in the context of other states having whole departments to write their curriculum, where we had schools in Tasmania all writing their own curriculum.

Respondent 17, also a principal, supports Respondent 3's view of a lack of competency from teachers' in their creation of a classroom curriculum by stating,

> I don't believe staff are proficient because given the limited amount of time that teachers have to sit and reflect, if indeed some do, then the changes brought about by curriculum reform are almost at the end of their life-cycle as you come to an understanding of it. Teachers finally get their head around it and get it sorted, and perhaps they maybe could have put a little more time and effort into reflection, so there is a lot of frustration given the time they are able to put into it. So there is a tendency for a culture in Catholic schools for a lot of, 'I'll dig myself down into the trenches and keep my head down, nod at the right times and my door closed and keep quiet and ride this out its going to come back to

something else soon". Some keep on teaching what and how they have always taught and hide it well.

Although there is reference to a degree of collaborative teams in two schools, almost all teachers interviewed in the study stated that they created their own curriculum based on their own experiences which is supported by the following statements: "When I plan, even though they don't use the *Essential Learnings* much here, I still plan using the *Essential Learnings* and the NSW framework together ... I use my own planning design (Respondent 9); "the curriculum is constructed very much on an individual level" (Respondent 13); "we are in the process at the moment of updating our curriculum because we hadn't really had a set curriculum at our school...it's a work in progress. There isn't currently a set curriculum" (Respondent 15); and from a teacher with forty years experience "most of my planning is based on my experience and what *'I'* consider essential" (Respondent 14).

Many teachers interviewed found it difficult to articulate how they construct their curriculum. This has ramifications for reporting mandates if moderation is to be conducted because moderating student work relies on work being generated under fairly similar conditions, with similar expectations. If curriculum design is response to a plethora of teacher interpretations of what they may subjectively refer to as 'sound curriculum', it may result in teachers omitting information literacy skills programs in their planning; they may not either view it as an explicit aspect of their teaching program, or they are unsure about the term and hence feel uncomfortable in creating a program that includes information literacy. One teacher of seven years experience in two states confirmed the conclusion that curriculum design can be difficult o articulate if a common curriculum is not referred to by all teachers:

Can you explain how your classroom curriculum is constructed?

Can I go onto the next one? I need to have a good think about that one. We do have English and Maths checklists that gives guidance on what is taught and I refer to

previous years' tests that were completed. It's more thorough in English and Maths because of the text-book nature of it I suppose (R16).

A heartening aspect involved in the confusion experienced by teachers regarding the process of reporting obligations associated with information literacy was the omission of reporting on the outcomes, rather than report inaccurately on an aspect of teaching and learning that would have been false. Respondent 23's school did not report on information literacy and stated:

> I think I could report on it, but I wouldn't have enough data to do justice to it. I couldn't discern which kids are top level or bottom level, so I'd have to rate them as a C or 'Not Applicable'. At the moment I wouldn't feel confident rating them using my judgement...I'd have to locate or find the specific benchmarks for the different school levels (R23).

The integrity displayed by many teachers who did not feel competent in reporting on information literacy was reassuring. It does, however, highlight the serious discrepancy that tends to surround prescriptive reporting from a bureaucracy that is divorced from the reality of reporting constraints of teachers. Respondent 4, an Assistant Principal stated honestly that "our staff took it out because it was confusing for some staff...(pause)...I'd hate to see it mandated and then reported on in a meaningless fashion, because it (teaching information literacy) wasn't happening" (R 4). Respondents 13, 11, 16, 19, representing four separate schools, stated that their schools did not report on information literacy in any report issued to parents in 2006, with Respondent 11 best summarising the feeling of the group by stating, "I don't believe that we have a strong understanding of the term let alone have assessment items to reflect the skills involved" (R11). Respondents from the two schools that were reporting on information literacy claimed that, while it was reported, staff wouldn't say that they were confident" (R 15) with the principal of one of the two schools that reported on information literacy stating that "staff were not confident and it's not reported on in the true context of information literacy; there were no explicit rubrics dedicated to assessing information

literacy." (R17). The onus on schools and principals to report on the commonwealth government's required outcomes was such that two of the six schools involved in this study did report on information literacy, however, evidence suggests that the process and the product involved more style than substance:

> "We reported on the element but I don't think staff had a good enough understanding of information literacy itself. In the absence of guidance, instead of reporting on a number of outcomes related to the criteria that we were not confident in understanding, we narrowed the definition. We cut back on what we did report on. We needed to be honest and professional and to work together as a school." (R3).

Another teacher related a staff meeting in which the teachers were 'confronted' for the first time with the term, information literacy, and the collaboration that ensued, with the notion of Catholic Education Office support being mooted, but abandoned by this respondent;

> *Are you familiar with how other teachers are using computers to enhance information literacy?*
>
> Information literacy? Well I'd be slightly familiar because we had discussion regarding the reports and teachers had to assess it and had to define the term in a hurry so teachers talked to each other and called on what they were already doing, but there was guidance because no-one was able to define, elaborate or clarify the term so there were a lot of interpretations regarding the term. I went straight to the Internet and I found some really reliable definitions, I found it very easy because there were fantastic definitions that were very detailed. I know that someone was going to contact the Catholic Education Office for a definition but I wasn't going to wait that long for a response especially when the term had just popped up on our reports (Respondent 14).

One teacher's statement regarding the reporting mandate accorded with many other teachers' concerns which relates to the authentic nature of assessing an outcome that, for most teachers, was not only new, but also far too abstract:

> *How do you feel about information literacy being mandated as a reporting element?*
>
> Unless they can come up with a definite test that would apply to a wide range of kids I believe it would be too difficult to currently report on. I wouldn't feel confident at this stage. I haven't seen anything that has been produced to assist so I don't know what they expect regarding standards for each year level (Respondent 16).

Teachers, therefore, appeared to be very engaged and informed participants in a curriculum reform process that many believed offered not only the opportunity to reinvigorate teaching and learning in their classrooms, but was a vast improvement in curriculum delivery in Tasmania prior to the introduction of *Essential Learnings*. The central theme of teacher discussion, which reflects Research Question 2 that seeks to explore what teachers discuss when engaged in curriculum reform, appears to focus on the accountability aspects; moderation and assessment. The philosophical framework provided by *Essential Learnings* allowed teachers to implement information literacy as a distinct, and assessable outcome. The fact that almost no teacher included information literacy in this context, despite a new reporting regime that expected it to be assessed, is revealed through teacher responses to their collegial conversations, which implied teachers were seeking greater curriculum structure and direction that would allow for fair moderation and simpler reporting to students and parents.

4.3 Post-modernism: Influences of social contexts on teacher engagement with reform

This section will examine influences of a teacher's relationship with their social context,

especially in relation to addressing research question three, which states *how, when and why teachers acquire information literacy skills*. An evaluation of how students also engage in information literacy is included in this section because such engagements are often dependant on a teacher's self-efficacy with the processes subsumed in the processes associated with information literacy. An analysis of factors that may influence a teacher's acquisition of information literacy skills is couched in this post-modern framework because it involves attributes such as age, teaching experience, school size and location in either urban or rural environments, gender and recent professional training or professional development. Self-efficacy issues can often determine a teacher's perception of curriculum reform and it is the intent of this section to explore variables that may affect a teacher's acquisition of information literacy skills, thus addressing research question three that seeks to understand why, when and how such skills are acquired.

4.3.1 Pre-service teacher instruction in information literacy

Of the 23 teachers interviewed in his study, only one made reference to having heard of information literacy at university, however, their recollections revealed a shallow and insignificant appreciation of the possible influence that mastery of the skills associated with the term could bring. Respondent 9's statement to the question relating to how would she define information literacy, typifies the shallow level of understanding held by all teachers interviewed with regards being instructed in information literacy at university, "...(pause)...well, I think we did it at university last year but...(pause)...I suppose it is integrating newspapers into a literacy lesson, but I'm really not sure" (Respondent 9). It appears surprising that pre-service teachers exit university without a workable understanding of the skills involved in information literacy. This is especially puzzling because information literacy is a term that all teachers agreed was a laudable inclusion into any curriculum, yet fraught with challenges because of the lack of

experience and guidance in establishing a teaching and learning program that incorporates information literacy skills. Burbules (1997) makes a pertinent and interesting judgement regarding teacher education and its logical extrapolation to the lack of emphasis on teaching student teachers to be independent learners when he states:

> Recognising the discontinuities and impermanence of knowledge systems and traditions of inquiry over time should make us wonder about the stability of pedagogical knowledge and pedagogical content knowledge claims, and indeed the relative merits of conceiving teacher education primarily as the transmission of pedagogical knowledge and pedagogical content knowledge (Burbules, 1997, ¶46).

4.3.2 Curriculum reform: Influence of teachers' personal domain from their experience of school-based collaborative practice.

Issues of age and exposure to professional development in ICT was evident as factors in a teacher's perception of school-based collaborative practice. Many teachers felt that younger colleagues were more confident and competent in the application of technology to enhance information literacy. However, very few teachers really expressed confidence in enhancing information literacy. Due to the demands of whole-scale and far-reaching curriculum change the application of ICT to enhancing information literacy relies on an understanding and grounding in an information investigation framework that is foreign to many teachers, regardless of their age. This lack of confidence that is a reflection of a lack of involvement in explicit information literacy programs is exacerbated by grossly inadequate professional development. The following statement by a principal of a small urban school expresses the point that such assumptions are not evident with the reality, because:

> Everyone is at such different levels of confidence and competence so it's hard to get anything standardised and some people are just getting there, almost achieving a strong and deep understanding, when something huge and new is added and they have to catch up. I think we have such a long way to go and it's hard to get things standardised because everyone is at so many different competency levels; it makes it harder. This is because there has not been enough emphasis on the type of training in schools for information literacy. I believe as a staff we have done a lot of work in curriculum design and we are doing well with visual literacy and Information Communication Technology; we are going well but we need to go further now. Our younger teachers have a better grasp of the concept because our in-service in Information Communication Technology has been ad hoc and inadequate. There almost needs to be a one-to-one personal training. It's too big now for visitors (visiting experts) to come in. It's huge and I'd like to see funding to come from above (Respondent 8).

Respondents, regardless of teaching experience, appear most frustrated by change processes, the intent of which is not clearly articulated. There is natural frustration and opposition to change if the perception by teachers involved in reform is one of scepticism due to the ambiguity of any reform objective. One teacher of over 25 years experience expressed the frustration expressed by many respondents when she alludes to the lack of structure and cohesion offered by reform processes that she has recently experienced:

> *Do you feel you have had adequate professional development in curriculum design?*

I'm not really sure that anyone really knows what curriculum design really is, it's hit and miss and make it up as you go. I'd say no, we haven't received much direction or support simply because I don't think anyone really knows what curriculum design is; it's in a state of flux. I don't think anyone really knows what is required and we don't really know what curriculum design really is and it's an evolving process. I haven't received any professional development in a long time (Respondent 21).

4.3.3 Teacher perceptions and subsequent implementation of the *Essential Learnings Framework*, especially as it pertains to information literacy

The strong focus in the *Essential Learnings* framework of structuring a teaching and learning environment that fosters thinking and investigation, is child-centred and unpinned by values was a strong theme that characterised the majority of conversations, regardless of the age, location and experience of the respondent, with the following conversation epitomising the view held by the majority:

How do you feel about the Essential Learnings framework?

We tend to focus too much on teaching them how to spell and read and write and whilst that's important, what is also more important is that we teach them how to think and I like that we can use Essential Learnings as an opportunity to teach them to think. It's no-body's fault but we've been spoon-feeding them when it comes to them making a punt and actually think about something, they haven't got the confidence to do it. I like the way that ELS allows teachers confidence and freedom. I like the way that Essential Learnings caters for a huge range of different kids, it looks at the strugglers and caters for the middle

kids who often get missed out a lot forgotten about, and it also caters for the extremely bright kids. I'm pretty positive about it (Respondent 5).

Table 9 highlights the noticeable difference in attitude toward the delivery of the *Essential Learnings* framework between the three school cohorts of small rural (between 90 and 150 students), small urban (between 90 and 150 students) and large urban (greater than 150 students). More than half of the respondents located in the large urban schools commented on the poor delivery of the framework, stating that the majority of their workshops were via staff meetings which resulted in the perspective shared by half of those interviewed from these schools that the framework was too radical and timely but not sustainable. This view is expressed by one teacher at a large urban school who stated "I really like what they've done with *Essential Learnings* in terms of some of the philosophies, pedagogies and thinking that underpins it, but I'm not a big fan of how it was delivered and presented" (R1). Many teachers complained that it was the fast pace of implementation that challenged their confidence with the curriculum initiative, as expressed by one experienced teacher who claimed:

> There has been a lot of information thrown at you but we have not been given the time to talk about it and unpack it properly. Basically there have been papers to read and then tasks to do, then you do the tasks, return to the meetings and you are given more papers to read and tasks to do and there are more tasks to do and there is never time to analyse the tasks or readings or reflect on the papers. There has never been any feedback. (R21)

School size and type	Staff meetings	Self-taught	Positive collaborativness	Poor delivery of the framework	Experts in the field	Essential Learnings Awareness	Essential Learnings Personal Feelings	Confident	Confused	Lack of curriculum	Positive philosophical framework	Timely but not sustainable	Too radial and too fast an implementation
Small rural (between 90 and 150 students) N=10	3	3	0	1	2	0	0	3	4	2	6	1	1
Small urban (between 90 and 150 students) N=4	2	1	1	1	1	0	0	0	2	2	3	0	0
Large urban (greater than 150 students) N=3	6	3	2	5	3	0	0	2	4	4	5	5	5

Table 9 Teacher perceptions of professional development.

The acquisition of information literacy skills by teachers interviewed in this study is reflected in the level of support received by many teachers in their appreciation of the philosophy and intent of the *Essential Learnings* framework. Seven of the 23 respondents explicitly mentioned having to research the *Essential Learnings* Framework themselves, as highlighted by the following conversation with a principal:

How have you been informed about the Essential Learnings framework?

> When I applied for my job two years ago it was a criteria to be addressed and I addressed it rather poorly so I got on the Internet and found some resources and did a lot of reading. Since then I haven't really gone out of my way to find anything either (Respondent 11).

Another principal stated that "most of my staff probably have a better understanding of *Essential Learnings* than I have" (Respondent 3) and from another principal when asked

about the process of being informed and then informing staff about the *Essential Learnings* framework:

> Um...(pause)...generally through my own research. My wife is a principal in the state system and she has informed me. Obviously we have unpacked it here but the sessions have obviously not been significant.
>
> *How do you feel about the Essential Learnings framework?*
>
> I don't know that there is anybody who is even totally involved who could accurately respond to that question. I would say that we have got a lot to learn and in response to concept-based learning and curriculum, it has an awful lot to offer. Whether you take on *Essential Learnings* or not, a lot of the groundwork, underlying principles have importance to what we do regardless of *Essential Learnings* (Respondent 20)

The process of allowing for acquisition of skills in the *Essential Learnings* framework and information literacy programming for staff new to the school or system appeared ad hoc and elicited quite negative comments from affected teachers who stated "um...(pause)...I haven't had a lot to do with it (ELS) since coming to Tasmania two years ago. I was given a folder and encouraged to use it but there hasn't been much in-service" (R16) and from another teacher of less than five years teaching experience "well I was given a folder with a lot of stuff to read and I've browsed through it but I've never been to a professional development day. I've been encouraged to read it...no-one has sat down and gone through it with me" (R19).

Teachers interviewed for this study were generally very positive about the philosophy intrinsic to *Essential Learnings* and information literacy. There was general agreement and consensus that there was a need for increased focus on pedagogy and that Tasmania needed some structure to frame a curriculum that was a working document, with applications to their

classrooms. Some teachers qualified their acceptance of the implementation of the *Essential Learnings* framework as stated in the following response:

> *How do you feel about the Essential Learnings framework?*
>
> For me, *Essential Learnings* is good if the class is small and you can channel it for the children's needs, it can work. After 20 years I've seem so much come and go and thank goodness I've developed my own curriculum and I stick to that so I'm not that worried. Well, my friends in the state system appear happy to do it but they are putting a lot of money into releasing and training teachers in implementing *Essential Learnings*. My friend has been taken off class and working with small groups and they are spending money on the teaching resources which tend to give Essential Learnings a good structure (R6).

Teachers indicated quite a strong empathy for the philosophy of ensuring students are taught using interesting pedagogies. The appreciation of implementing enquiry-based approaches to teaching and learning programs, which is supported by the incorporation of teaching explicit information literacy skills is expressed well by the following teacher:

> It's a framework in name and in nature I think. Whilst there are some positives in moving some people's mindsets in a different way rather than being a textbook or curriculum based content approach, it has opened some people's minds, I would hope, to a different way of thinking and integration as to how children learn rather than just the learning. The more we allow for exploring how children learn the better we are at providing opportunities to learn; we become better teachers. This can only be good I suppose (Respondent11).

Respondent 23, a teacher of less than 2 years experience was generally positive about the *Essential Learnings* framework, however, had misgivings about its implementation and usefulness in being ***the*** essential and only tool for a class teacher by stating:

> I am comfortable with them and they are all I know and I'm comfortable with them but there are holes in them. They don't really tell you what to actually teach so it's left up to interpretations up to a class or school or from school to school. So one school might do *Personal Futures* and they interpret this broad heading as being relevant to Hygiene, while another school might interpret the heading as a good unit for Goal Setting. It caters for a good education but it needs a whole school approach. It could leave a lot of holes in a person's education. There is a need for cross-school conferencing.

This view is confirmed by a teacher of 40 years' experience who states,

> *How do you feel about the Essential Learnings framework?*
>
> Um...(pause)...very doubtful. I don't think it's the best thing I've come across. I think I feel like a lot of other teachers in that it's exciting in some respects because it's quite visionary and forward looking but it doesn't say enough about what really needs to happen for every child to have educational foundations, there is a lacking in depth of content I feel. There also may be some staff who are still unsure about how to apply many elements of the framework (Respondent 4).

There are numerous references in the conversations with teachers regarding this such as "I quite like the idea of *Essential Learnings* but you can't escape the rumblings from a lot of teachers about it such as 'it's just a rewording of what we've always done' or 'it's full of jargon' or 'we covered this 20 years ago'" (R13) or a principal who stated "staff views varied and especially among some senior staff, there was the perception that it was just another circle,

another circle and there were aspects of negative aspects associated with the program because it did challenge some teachers teaching styles with some feeling that it will just go away, and some undoubtedly felt confused". This is collaborated by a teacher of 25 years experience who stated "some things go around in circles, but it is necessary to be informed about any developments if they influence our chances of meeting certain requirements" (Respondent 19). These views support those expressed within the text of the following conversation with a principal, being interesting in many ways:

> *How do you feel about the Essential Learnings framework?*
>
> Can I give an emotive response? I think it's a very good 'ideal' curriculum but like all our stuff it doesn't always fit into a reality. It's a bit like a pendulum for me. It started out as a totally integrated approach and then they started talking about assessment and specific standards outcomes, which is in complete contradiction to its original paradigm or the belief that established *Essential Learnings* so there's a contradiction there. And now it appears to be moved to enquiry-based learning that is done at certain times and other key learning areas support it. And like all pendulums it's starting to swing back to reality. It is empowering, but I'm not sure that's not really how I feel...(pause)...it's potentially empowering (Respondent13).

4.3.4 Information literacy as a constructivist process.

Information literacy programs are investigative engagements, which implies information literacy is a constructivist process. For information literacy to be integrated in a teaching and learning program it is important for teachers to reflect on their own appreciation of constructivist learning. Professional development in constructivist learning, and planning enquiry-based units have been undertaken regularly for all schools in the Hobart Diocese, however, conversations with teachers highlight a need for more in-service that informs the

teaching of the processes intrinsic to information literacy. There is a need to establish circumstances that oblige teachers to implement the process, reflect and then have discussion. This view is expressed well in the following conversation:

> *Do you incorporate information literacy in your classroom?*
>
> No, no. I don't believe I teach explicitly, information literacy and I suppose that's because I don't have a heightened awareness of it. If it happens, it happens by chance. For example, with literacy blocks, I thought that we all did it because we set aside two hours for teaching literacy such as spelling, reading. But I now know that it involves whole class time, specific skills, task-oriented, cooperative learning, task-oriented guided group work, lots of structure and it wasn't until I attended an in-service in literacy blocks that I have a heightened awareness of it. Now I do it all the time because of this professional development session and I talked to others about it and I translated that to our Maths block. If I was to receive more in-service, or any in-service about information literacy and its importance to learning, if I was given quality professional development in it, if my understanding was heightened and saw the value in it, if it wasn't rubbish, and I had some more experience in then, yes I would use it a lot more. I'm always looking for a better way to things (R20).

The provision of a resource rich learning environment was a common theme in many conversations, with one teacher stating "I get inspired by resources and often when I see a really good resource I try to weave it into my program. And very often you can because it deals with literacy. Resources really inspire me" (Respondent 14). For information literacy skills to be developed in students it is imperative for teachers to have a firm understanding of the term, to have had success themselves with information literacy processes and for the curriculum programming that is undertaken by the teacher to allow the students the

opportunity to engage in an authentic information literacy process. A teacher suggested that this is difficult because, when endeavouring to lead his Year 3 class in an independent research task that expected them to undertake individual research, his views confirmed his earlier assumption that both teachers and students are not confident with the processes subsumed with effective information literacy teaching and learning:

> A couple gave up straight away. They said, 'I can't do this'. A couple really tried hard but got nowhere. There is obviously a need to explicitly teach information access processes. It probably wouldn't have been intimidating if I had set the research in the library although a lot of them would simply ask the librarian but the majority would know the area to look and some would just browse the shelves; they are more familiar with going to the library so it probably wouldn't have been as exciting, but it would have answered the questions (Respondent 16).

4.3.5 Factors influencing a student's engagement with the information literacy process.

Teachers associated numerous factors they considered important to a student's effective engagement with the information literacy process. These included time available in class, the age of the student, the influence of the home, access to technology and a teacher's prior experience with both being taught the skills in information literacy and their self-efficacy with technology.

Age was definitely a consideration, and a cautionary one for early childhood teachers when conversing about the teaching of information literacy skills, as is highlighted by the comments of one teacher of 30 years experience throughout primary school grades:

> *Could you explain you feelings about teaching information literacy.*
>
> I'm a little vague on it but I guess it's a child's ability to gather information that they can use in a project or a study that they're doing...(pause)...gathering

from books or...(pause)...electronic sources or television or any method at all. I don't think it's appropriate for grade 1 (Respondent 19).

One teacher of Year 6, mentioned gender as being an influence, but really highlighted the influence of home in developing the higher order thinking and engagement skills of displaying discernment and judgement:

And the discrimination and judgement is an age or expertise factor?

Yes, I do think so. I think in watching my own children, my daughter at 15 is only now showing the ability to show judgement and be discerning regarding what the author's point of view is. Watching her, I think we might be asking too much of our Grade sixes, not many of them have the skill to be discerning unless we explicitly teach it and even then there is a maturity factor that many of our children don't have. I suspect that some of it is gender and some of it's to do with home. Also, it's the teaching and guidance; it relies or reflects how they have been taught. I suspect it is a maturity factor too. I have more mature girls at this age than boys, that's just a fact, it's not discriminatory, they are more willing to act on what has been taught, it could be to do with their home environment. A lot of children are listening but unable to take it in, they are not willing to engage. So to be able to be discerning and display higher order skills, well, they just don't have those high level skills (Respondent 4).

This teacher refers to the difference in boys and girls' engagement with information literacy tasks on three other occasions in our interview: "When I wanted to teach them bias I chose those sites because free reign on the computers with some of the boys often results in a huge waste of time even if I give them parameters"; " My more capable children, who are generally girls, all work in pairs and can draw information out of sources, will peer-tutor other less able students and who are patient" (Respondent 4).

Availability of time, the age-old and constant constraint in all our lives, is a factor for many teachers in their conversations regarding implementing a teaching and learning program that considers a student's engagement with information literacy. A teacher of 20 years experience in the middle primary school highlights the need to allow for discussion and the organization of the classroom and program to allow for children to have a voice themselves and he states:

> A lot of children, however, do have good communication skills but are not able to express themselves in what they're thinking or they can't reflect on their own thinking and to know what they're thinking. It's often just a matter for them saying to themselves, 'Well I've got to do this work and get it finished. I'll just have a go. I won't think about it. I won't ask what it means, I'll just do it'. How do you get them to do that? Well, I think you need to get a lot more discussion and allow more opportunities for thinking, more small groups guiding and teaching them to think and guide their investigations. And give them more information. It can be a scientific approach such as 'here's a problem. Why do you think this happens?' It can be scientific by getting them to test their ideas out. Most of the time they need to do this through discussions and arguments and I don't think we have the time or energy to do it justice. Instead, our days are spent just trying to get things finished such as sports' days. (Respondent 17).

The importance of students being computer literate as a precursor to being information literate was also strongly contested by many teachers. One teacher of Year 2 students in a small, rural school expressed a strong familiarity and confidence with ICT. He realised the importance of information literacy and alluded to a frustration in being unable to lead the class to exhibiting competency in information literacy, not necessarily because of their age or time constraints, the

computer literacy competency of his class or even his own level of computer self-efficacy, but because he, like most other teachers interviewed, had no prior experience in either learning or being explicitly taught information literacy skills:

> We are doing a little bit (of information literacy instruction) I think. Because I'm grade 2 we are only now beginning to explore the concept. An example is setting the class a task on researching a band which involved finding some information on the Internet, scanning the information based on the questions I had set; I am finding that this task was beyond them without explicitly teaching the skills involved in finding the particular info that was needed. Upon reflection I feel I should have specifically and deliberately taught the skills involved in searching for relevant information, especially using the Internet. A lot of kids in my class just can't locate the useful information because the resources or the searching, locating and accessing the resources are too difficult and that they need to be given or led to these sources. I think it is not an intrinsic skill and it needs to be taught. It might be that they are young but they can't find the relevant info to answer questions. They are given key words and only a couple can read through or flip through and it goes hand in hand with being able to read and being comfortable with a piece of text in front of you and also being comfortable with a computer. There is a computer literacy variable – they are interconnected and linked. There were some kids who I know could do this task but they struggled and they seemed to lack the confidence because of the extent of the information sources that they needed to discern. I believe the steps involved in research were not clear to them even though I thought I had given them sufficient skills (Respondent 23).

4.3.6 Influence of teaching experience on teacher self-efficacy

There were five instances of factoring 'time' as an important hurdle to incorporating ICT into the curriculum and were all mentioned in conversation by teachers of greater than 10 years experience (R3, R7, R14, R17, R21). This may allude to the more focused teaching of key learning areas of the experiences of these teachers as opposed to the ever-expanding curriculum that has characterised education in more contemporary times which does not give the less experienced teachers any reference point for comparing the extent of curriculum demands.

Respondent 14, a female teacher of 40 years' experience, laments the inability of developing a truly rigorous ICT program due to time constraints in initiating an ICT program by stating "it's a time issue, but I think they (computers) are so important because the information is so up to date and they are so efficient in locating information" (R14). A principal of 35 years experience reinforces the point that a student's age is a factor in considering time as a constraint when engaging students with ICT when he states "I don't spend enough time with the educational aspects of computers" (R11).

> *How would you rate your confidence in the educational use of computers.*
>
> Um...I tend to think that maybe I'm not a computer technician but if I had the time to sit down and play with the computer and programs I would learn. If you tried to tell me how to use it, I won't understand it. For example I have a planning program on my computer which I don't understand; it's weird and if someone came in to try to tell me how to use it and other programs, well, forget it because I need time to work out the rules and processes (Respondent 21).

4.3.7 Influence of gender on teacher self-efficacy

All eleven males responded positively in conversation with regards to being confident or independent with technology. Some related the enhanced experience of self-efficacy as being related to their qualifications in the area:

> *How would you rate your confidence in the educational use of computers.*
>
> Yes, very confident. I have qualifications and I am self-taught. I have grown up with computers and I developed a lot of good strategies in using computers. I handle transitions well because of my experience although there is always a lack of time for familiarisation (R1).

Others did not have a background in ICT, however, they expressed a positive response to their level of confidence, especially with a correlation between the existence of a school computer laboratory and their perception of confidence in planning ICT in their curriculum as expressed simply by Respondent 13 who stated "now we have a computer lab and now I use CDs in the classroom which I haven't always used, so I've changed too". Younger male teachers viewed their age as being a key determinate of their high level of self-efficacy in the area of teaching ICT skills which is expressed by Respondent 23 who stated:

> *How would you rate your confidence in the educational use of computers.*
>
> No worries at all. Yes, I'm comfortable I suppose it comes from me being young or younger than a lot of teachers and I can't remember not having a computer or play-station at home or around. To me it's quite normal having a computer around. It's something that you grow up with. In high school and university I did all the courses at university related to information communication technology. It's normal for me to have had a computer and know how it works.

However confident the males felt with their own perception of engaging with a computer, interestingly, when over half of the eleven male respondents were pressed to elaborate on how

their own high levels of confidence in ICT were transferred to developing an effective ICT curriculum, elements of inadequacy became strongly evident as highlighted by the following remark by a male Principal:

> I'm reasonably comfortable but when it comes to teaching it to children, I'd probably get a senior student to show the others. I could show them basic things but not much more than that. On the rare occasions I do it and I did a couple in the beginning of the year and whether I was fresh and enthusiastic I have tried to use and show my skills, but I haven't done a lot since. It was a bit of fun (R3).

Another male Principal lamented the perception held that, although his own level of proficiency was satisfactory for his own means, he realised it wasn't at a high standard and that, "I couldn't offer technical advice to the students but, sadly, where the level our kids and teachers are at, I'm able to assist but that's because they (teachers) aren't good" (Respondent 17). Another male Principal was a little contradictory in describing his level of confidence in the classroom as, "Pathetic...(pause)...I haven't been in the classroom for a long, long time and I wouldn't feel confident in some integration aspects" (Respondent 20), while tempering this critique by soon after in the conversation explaining that in his opinion he is, "computer savvy" and uses the computer extensively, well over 20 hours a week.

Eight out of 12 female respondents made explicit statements in their conversation that revealed a positive self-image with computers, with the following statement being typical, referring to age and experience outside school as being key factors "I'm quite confident but I've always had access to a computer and I guess I'm very lucky that in my era the expectation was that we used and submitted computer work" (Respondent 1), which is complemented by another teacher of less than two years' experience who stated "yes, I am confident because I use it a lot and have been educated with computers; I'm not afraid of

them" (Respondent 9). Still another comment reinforced the general feeling of confidence being expressed by the eight females: "Computers don't frighten me or put me off and I am happy for my students to use them, but I do see them as another tool for learning basic skills" (Respondent 4).

Respondent 7, a female teacher of over 25 years experience, expressed the common view of teachers confirming ICT skills being intrinsic to the contemporary curriculum when she states "yes, I'm quite confident and it's a necessary skill for children to have". Another female teacher of 40 years experience expressed the statement that refutes some perceptions that were expressed by younger teachers with regards a correlation between computer self-efficacy and a teacher's age when she stated "I think I'm both confident and competent" (Respondent14) and this aspect of confidence in engagement with computers being reflected in a teacher's own self-concept by the following statement by an experienced female Assistant Principal who stated:

> *How would you rate your confidence in the educational use of computers.*
>
> Pretty good. We haven't really used the computers until recently when we have now had the lab going and we now use it weekly and it has really surprised me how quickly they have picked up on so many things especially shortcuts and highlighting. For example today, I taught them how to highlight and we use a data-projector for everything because they have to be able to see everything. It's just the little things that we do but they're important for their skills, their technical skills in computers. I suppose I feel confident enough in my own abilities to teach them. I think the technical skills in computing will lead into more confidence in searching and making sense of information in that environment (R18).

Uncertainties relating to computer literacy that featured in three of the female respondents focused on the theme of rapid change with computers and the expectation that curriculum design should incorporate such development. This concern was expressed by Respondent 1 who stated:

> It's frightening how fast change happens so we need to keep up with these developments... It's a journey and people have already come a long, long way and we need to ensure teachers are happy and for them to consolidate their skills prior to expecting them to incorporate and teach specific Information Communication Technology outcomes more meaningfully, certainly not where we want it to be, but it's a journey (R1).

Respondent 6 compared her engagement with computers with the skills and competencies displayed by her students, an upper grade, when she stated her level of confidence was "not good; the kids are better than I am so I use the better ones to assist others". A similar sentiment was expressed by a male Principal who stated "I can use the basic programs, *Word, Excel.* I'm getting better at technology, I can email. I don't spend enough time with the information or educational aspects of computers. It's increasing but at a low level" (Respondent 11).

A common insight that emerged from conversation with female teachers focused on the need for technical support in computer resources, services and facilities. Respondent 6 alluded to feelings of guilt in not using computers more in her teaching, but she qualified this view by referring to the lack of technical support offered:

> We really need back up and support in the technical side of computers; just providing a computer laboratory really isn't good education because if you're not confident, you just don't use them...what can you do if the support isn't there?" (R6).

Respondent 12, an experienced Assistant Principal (Teaching and Learning) with teaching experience interstate claimed to have a *pretty high* level of confidence, but qualified this claim by stating,

> But it was definitely higher in Melbourne because we had a computer laboratory, whereas here we haven't the support and if it (ICT technical support) is not there, then you won't use it or if it's failing, you won't use it (R12).

An uncertainty common to both genders is related to the lack of judgment with regards the school or class-based ICT program, with one Principal stating that his level of proficiency is improving but "it's hard to say because I can't compare myself with anyone else" (Respondent 11) and another respondent stating "I'm not sure how comprehensive my program is because I don't know what other schools are doing"(Respondent 13). A similar view was expressed by Respondent 21, a female teacher of 30 years' experience, who stated, when asked to reflect on her level of computer confidence that "it's difficult because I can't compare myself to how others are using computers so I really can't rate my proficiency".

4.3.8 Influence on grade taught on teacher self-efficacy

There was a strong tendency for early childhood educators – those teachers of Prep, Year 1 and Year 2 – to have difficulties responding with conviction regarding their role in a student's creation of knowledge. This is expressed by a Prep teacher (Respondent 9), who has taught for one year in a small rural school in the following conversation:

> *Do you believe that the children have the skills to create knowledge?*
> I think so, but I can't think of any indicators. It's hard at my teaching level too, Prep children have so much to learn but I don't know...I would suppose

that they would have to create knowledge but I can't really, with confidence, explain my role.

Are you satisfied that knowledge is being created in your classroom through your planning?

(Pause)...I would have to say yes, I suppose.

A teacher of Year 1/2 (Respondent 2) also contended that the students in her class were guided strongly in basic skill development, with less of an emphasis on independent knowledge creation:

Do you think it's possible to differentiate between knowledge and information?

At this age group I'd think it was fairly tricky. But information is something we are seeking, we need to know, we are trying to find it whereas knowledge is something we already have.

The same respondent then alludes to the text-specific comprehension skills that are intrinsic to reading as being most important in developing in these early childhood areas. For all the early childhood educators interviewed in this study, there was consensus that their primary role was of teaching and developing these foundational literacy skills, which they deem fundamental in further engagement in information literacy:

Do you believe that the children have the skills to create knowledge

At grade 1 or grade 2 level?...(pause)...teachers feel pressured to meet outcomes and, in an ideal world and as children get older, it would be great to set them tasks with open-ended activities. We really have a lot of basic learning that we need to cover, especially in foundational, early years. So, as teachers, the creation of knowledge is in the back of our minds but we can't

> set aside the time for creating and exploring, more experiential learning. I'd say it's middle to upper primary but the early childhood educators can work to create an awareness of information literacy, which reflects their basic literacy competencies too, but if they can't read the information, then part of information literacy is denied (Respondent 2).

4.3.9 Influence of a child's age on the teaching and learning of information literacy skills

The common theme running through interview conversations regarding questions that relate to knowledge creation focuses on whether children have literacy skills. This is interesting and somewhat contradictory on first impression because the initial interpretation of information literacy for most teachers was the strong association of the term with ICT, not literacy or the English learning area, as expressed by a teacher (Respondent 16) whose responsibility is in providing ICT classes for the school one day a week who stated that "information literacy is complementary to information communication technology rather than English because of the sheer amount of information available in the information communication technology area".

Regardless of the grade taught, teachers were concerned that a child's literacy skills are intrinsic to any effective information engagement, which is heartening and leads to the researcher's conclusion that there is a need for minimal professional development in this area of defining the term in this literacy context, for the term to be more fully accepted and implemented by teachers. This conclusion is supported by an example of many teachers' reactions to the question, *Do you believe that the children have the skills to create knowledge* with the following conversation by an experienced teacher (Respondent 1) who stated:

> Um...(pause)...I think they are developing it. A characteristic of our school is the fact that our children arrive with low level literacy skills and we have to

be conscious of that need and we need to put a lot of energy into lifting their literacy. I think to create knowledge you need the skills to access information independently. A lot of my kids are still at the developing stage, I think only 30% would be confident creators of knowledge. An indicator I would look for would be whether they make a personal response in that before they can own or understand knowledge they need to understand and empathise with the information. The kids who create knowledge own the information because they can do something with it; it empowers them to want to something.

For most early childhood educators interviewed in this study, the lack of computer skills were distinctly associated with a general apprehension in allowing student engagement with ICT in an information literacy task. One experienced Prep teacher stated "with Preps it can be difficult because I have to set everything up myself but I know with the Year 6 the teacher can get the kids to set the computers up and organised. And I know this is a problem for other teachers too" (Respondent 12). A child's age, although related to the grade or year level, has implications on the delivery of information literacy programs. This conclusion is supported by comments by an inexperienced Prep teacher from a small rural school who stated:

Do you incorporate information literacy in your classroom?

I think it's implicit because they are only 5 or 6 years old and wouldn't be able to cope with it. I do it, but in a way I don't believe you know you are doing it if you know what I mean? We talk about messages and meanings and I believe books carry important messages, especially picture books. We haven't really used the Internet in prep (Respondent 9).

An experienced Prep teacher (Respondent 18) who had taught all grade levels contended strongly that there were a variety of influences on a child's ability to create knowledge. Although she was apprehensive about the definition of knowledge - which implies that the classroom curriculum was more focused on instruction of foundational skills – she contended

that an acquisition of these basic literacy skills would enhance a child's ability to be involved in what all teachers believed were the high level skills fundamental to information literacy.

> *Do you think it's possible to differentiate between knowledge and information?*
>
> (Pause)...Information such as?...(pause)...Um...(pause)...that's a hard question. I suppose it's based on Bloom's taxonomy and the different levels of comprehension and some children, or a small percentage could learn some things and then apply the new knowledge to other areas but...(pause)...I think it would be based on age, experience and ability rather than gender.

The same teacher (Respondent 18) later in the interview conversation, contradicts this initial premise that knowledge creation is age dependent when, in addressing the question, *Do you believe the children (Prep) have the skills to create knowledge?* she states "no, I really don't think so at this age and this class, although my Prep class last year, I would say, yes, so I don't suppose it's entirely age related". This statement is reiterated by another Prep teacher's conversation to the same question:

> Um...With the current class that I have at the moment well yes I do. I'd say they have the skills but other classes I have had in the past would really struggle with it, they wouldn't be able to create knowledge as well as my current class because they are a bright bunch (Respondent 5).

If a group of the same age can achieve knowledge creation, whilst the next year's cohort fail to live up to the teacher's expectations of knowledge creation, then one may assume information literacy can be taught in the early childhood area with varying degrees of success depending on the programming of the skills and the attributes of both teacher and learner.

	Weekly use of a computer in hours = Between 2 and 5 hours	Weekly use of a computer in hours = Between 5 and 10 hours	Weekly use of a computer in hours = Greater than 10 hours	Years Of Teaching Experience = Less than 2 years	Years Of Teaching Experience = Between 2 and 5 years	Years Of Teaching Experience = Between 5 and 10 years	Years Of Teaching Experience = Between 10 and 15 years	Years Of Teaching Experience = Greater than 15 years
Collaboration	3	5	7	0	0	6	3	6
Type of engagement	5	4	8	2	0	8	3	4
Intimidated, unsure	3	3	5	0	0	4	2	5
Positive feelings and application	3	6	7	2	1	7	2	4
Planned, experiential learning	1	4	5	1	0	4	1	4
Random, incidental use or referral	5	2	6	1	1	7	1	3
Under-utelized	2	1	4	1	1	1	2	2
Whole class, lab	3	2	4	0	1	4	1	3
Word processing	2	0	1	0	0	1	1	1
Specialist staff	1	3	3	0	0	4	2	1
Confidence or independence with technology	3	6	10	2	1	7	2	7
Confusion	3	3	6	2	0	3	3	4
Collaboration and cohesion	1	4	2	0	0	3	0	4
Enthusiasm, proactive, wholehearted	1	3	1	0	0	2	1	2
Sharing wildcard 7 curriculum or technology	2	2	6	0	0	4	1	5
Adequate	1	3	6	2	0	5	0	3
Inadequate	3	3	5	0	0	3	3	5

Table 10 Influence of ICT use on teacher self-efficacy with information literacy

Table 10 confirms the strong correlation between confidence or independence with technology and the weekly use of computers. References by teachers to notions of confidence or independence with technology increased dramatically with weekly use of computers in hours,

with only three out of six teachers who use computers in the lowest range of between two and six hours making explicit mention of being confident with teaching ICT compared to sixteen of the seventeen teachers who use computers more than five hours a week.

Thirteen of the 23 respondents explicitly highlighted their belief in the incidental use of ICT as being their usual mode of creating a teaching and learning environment to meet the ICT outcomes that they have planned, with five out of six respondents who expressed only using computers between two and six hours a week, being in this category compared to less than half of the respondents associated with the groups that fall into the categories of between 5 and 10 hours a week and greater than 10 hours computer use a week. This reluctance to treat ICT as a discrete and definable key learning area by most teachers interviewed is rather disturbing in that it results in a subjective treatment of ICT, a learning area that underpins successful engagement with online investigations of information and subsequent publication of work.

Collated data, as expressed in Table 10, does not support a perspective that a teachers years of experience in the classroom correlates with a lack of confidence. However, more inexperienced teachers appeared to have more responses that indicate they are more positive in the use of technology, especially in a random or incidental use of ICT. The type of engagement also reinforces the view that less experienced teachers are more willing to engage students in a variety of ICT applications. Teachers who exhibited a degree of reticence regarding their own ICT proficiency were also less likely to be involved with other teachers in a collaborative approach to ICT and information literacy, or in sharing with others in regards ICT and curriculum initiatives. Teachers who indicated they spent between two and five hours a week using computers in both school and home or recreational use were more likely to refer to word processing when discussing their teaching and learning programs that incorporate ICT; this may indicate a cautious, controlled approach to incorporating ICT.

School size and aspects of curriculum	Sharing wildcard 7 curriculum or technology	Collaboration and cohesion	Construction of curriculum	Essential learnings aspect	Fear or confusion	Lack of uniformity, influence or direction	National Statements and Profiles	Primarily NSW curriculum	Reporting driven and accountability	Scope and sequence
School size = Small rural (between 90 and 150 students)	4	2	0	6	1	3	3	7	1	3
School size = Small urban (between 90 and 150 students)	0	1	0	1	0	2	2	2	2	1
School size = Large urban (greater than 150 students)	6	4	0	1	3	9	1	4	1	0

Table 11. Teachers' sense of collaboration

The following conversation highlights the view felt by the 13 respondents who made explicit mention of using ICT in a somewhat random manner, with student acquisition of associated skills also not being clearly identified,

> *Are these (ICT) activities planned or are the activities planned to meet objectives?*
>
> The computer technology aspect I am opposed to and disagree with. I would rather them become familiar with the computer rather than work toward explicit outcomes, so no, I don't teach to meet outcomes. I think by getting them using the computer and exposing them to the technology, through that exposure an

outcome will be a growing awareness and confidence in using computers; it's an incidental outcome" (R23).

All respondents referred to being able to report on ICT skills and most schools appeared to be currently working on the design and implementation of a whole-school scope and sequence for ICT. Well over half of the respondents explicitly mentioned their concern at being compelled to report on Information Communication Technology, mainly due to the lack of structure provided by their schools with Respondent 15 stating that "we sort of outline outcomes and goals...(pause)...but we don't have a specific scope and sequence" and Respondent 16 who has an extensive interest and experience in the use of ICT in schools in two states who claimed that "it is usually related to how staff feel about the skills and programs especially; there is no obligation on anyone of how information communication technology is taught". This perspective is supported by respondent 21 who states "I don't believe we have outcomes that need to be met do we? I don't assess them on outcomes", although the majority of teachers shared Respondent 9's experience in having to draw up their own criteria for benchmarking ICT skills by stating "I can report on a growing range of skills, which I have generated myself using examples that I've picked up along the way of university and school experience".

This perspective of recognising a need to fulfil key learning outcomes but not have access to contemporary and rigorous curriculum standards is emphasised by Respondent 1, an Assistant Principal who states "we are at the stage of putting together an Information Communication Technology scope and sequence; we have one somewhere, but we can't really locate it" and this statement by a principal who shares the common view that information communication technology needs to be properly considered in its various dimensions if any teaching, learning and reporting is to be comparable between school:

> Our long-term goal is to have staff up-skilled and more familiarised (sic) with information technology which results in student up-skilling. We need to

develop a scope and sequence...(pause)...we need to include a skills and knowledge component, which is not that much different from other key learning areas because now each child (in our school) can and will access a computer" (Respondent 3).

Respondent 14 confirms the theme of treating ICT as a separate, yet inter-related key learning area by stating that "yes, we have a plan in our school that goes from Kindergarten to Year 6. It's a good skill and development plan and we engage in a weekly 40 minute computer session and everyone is regularly tested" (R14). Respondent 14's school was unique among the seven schools involved in this study in that it had a document that appeared to guide the school's staff in the direction of treating ICT as a key learning area with unique dimensions and aspects that lend itself to integration with other key learning areas. The feeling that most teachers elicited when being asked about the availability of a school-based curriculum dealing with the teaching and learning of ICT who stated:

Are these activities planned or are the activities planned to meet objectives?

No, not really. We don't have a school scope and sequence in technology or computers and I really don't know what stage the class should be at. I get a feel for their expertise and believe that they are progressing well, but, no, I don't really use objectives but I suppose that will come soon now that we are using the NSW documents and curriculum. I believe it's important for them to learn keyboarding and word processing and I know we do that well (R6).

4.3.10 The role of technology to illuminate and invigorate the curriculum

Almost half of the 23 teachers interviewed in this study spend more than 10 hours per week using a computer for work-related use, with no-one stating that they engaged less than two hours per week. Six respondents claim to spend between two and six hours per week and six respondents spent between five and 10 hours per week. Conversations with teachers highlight

an acceptance by all teachers of the educational role and growing influence of ICT in invigorating the curriculum, especially with the establishment of computer rooms that many teachers believe have facilitated enhanced opportunities for explicit teaching of not only desktop publishing skills, but also information searching, location, analysis and retrieval skills. There does seem, however, to be a lack of school-based scope and sequence in the implementation of system-wide incorporation of ICT in the use of technology to developing information literacy skills, with most teachers inferring such skills being an incidental outcome of their planning. This is portrayed by the following conversation with an experienced Assistant Principal:

> *Can you illustrate how you use computers in the classroom?*
>
> When random questions occur I usually get the kids to access the Internet but for the most part I would use whole class activities and I particularly like the fact that we have a computer room where I go and deliberately aim to embed in normal class planning. I have used mobile laptops where I have set up rotational tasks, publishing, drafting and editing. I don't see the pencil and paper editing anymore because in the real world or even in high school it's not the reality and the technological advancements of Word for example is a particularly useful tool, as useful as a friend or teacher for editing. It's when kids are processing their learning that I think computers are very useful (R1).

There was consensus among almost all respondents regarding the new instructional aspects of ICT in the classroom as explained by a school principal:

> *How would you describe your students' use of computers in the classroom?*
>
> Children formerly would 95% of the time have used the class computers for pleasure or games, now 75% to 80% of the time is educational. The things that the Year sixes are doing now compared to in previous years is now miles ahead. The up-skilling of skills is not the focus because most teachers are not

that confident so the focus has been knowledge access using computers. The teacher has spent a lot of time planning for objectives to be met (R3).

This statement by a principal expresses the desire felt by many teachers in using a variety of learning tools to invigorate the curriculum: "Information Communication Technology can engage children in active learning. I think we need to look for ways to engage them because they can't just sit there and listen anymore" (R8). When asked, *How would you describe your students' use of computers in the classroom,* one teacher (Respondent 7) of over 30 years experience explained quite poignantly the view shared by many teachers that relate to a teacher's false sense of insecurity and apprehensiveness when implementing a structured ICT program:

> It varies from child to child but they all thoroughly enjoy it and look forward to it and become quite excited about doing quite simple tasks. It's come as quite a surprise to me that they react like this. I would have thought they'd use games and become quite blasé with computers and it becomes all so boring, but I think maybe that is what it is; they may be so used to playing games that when they have to type something and do something of their own it becomes quite exciting.

The challenge that was apparent to many teachers, however, was the fact that ICT was a mandatory reporting area. This concerned many teachers and the following conversation reiterates the typical ICT programs being conducted at the schools involved in this study:

> *Can you illustrate how you use computers in the classroom?*
>
> We use them in our Numeracy and Literacy blocks. For example a group would use 'Spell-force' or 'Numbers-up', CDs for half an hour a week. Occasionally, if a child does some worthwhile writing they word process and type it up in the classroom. I would say we'd do this twice or three times a term. We are rostered for computer lab time and in a general sense, we go down to the lab for

45 minutes a week and the class does some touch typing courses using 'Typing Tournaments' or do some Google searches on topics. I am not sure how comprehensive my program is because I don't know what other schools are doing. I am satisfied that there is a good balance; we don't do too much or too little.

Are these activities planned or are the activities planned to meet objectives?

That's a good point because that was another option in our report that we left off reporting. ICT was an option and I had three criteria: word processing skills another one was Internet searching skills and, I forget the other one and when I sat down to evaluate each student it occurred to me that I hadn't really planned to evaluate each student's work as thoroughly as I'd liked if you know what I mean?

Weekly use of a computer in hours	Less than 2 hours	Between 2 and 5 hours	Between 5 and 10 hours	Greater than 10 hours
Definition aligned to ICT	0	4	2	6
Definition implies 'locate and create knowledge'	0	4	5	5
Fear, confusion, overwhelmed	0	1	0	4
Information Communication Technology	0	1	2	5
Lack of deep understanding and application	0	3	0	7
Not confident in application	0	1	3	4
Awareness of other teacher's use of ICT	0	0	0	2

Table 12 Effect of a teacher's weekly use of computer in hours upon providing details regarding a definition of information literacy.

As highlighted in table 12, most teachers who were interviewed admitted to having no idea what other teachers were doing with regards the incorporation of ICT to enhance information literacy. A typical conversation by one teacher of one years experience typifies the isolation that occurs in schools with the interpretation and implementation of curriculum initiative:

Are you familiar with how other teachers are using computers to enhance information literacy?

Um...(pause)...I think most teachers use computers for typing information and just surfing the net. We have just had some professional development that tries to get us to do more than this. I haven't met anyone who really integrates information communication technology into most aspects of planning and teaching. I really don't know how any other teacher uses information communication technology to enhance information literacy (Respondent 23).

This contrasts strongly the school principal's perspective on collaboration among staff with ICT initiates that foster information literacy competency. The principal answers the same question by saying "we do a fair bit of reasonable sharing at our curriculum meetings and there are no secrets and the results are self-evident" (Respondent 20). Another teacher at the same school concurs with the belief that there is a professional dialogue, however, heeding the question carefully, raises issues of certainty, especially with the use of the word 'probably' on two occasions and the admission that information literacy is not discussed; once again, ICT, has become the interpretation by teachers rather than information literacy "yes I'm aware and it's probably through chatting, we really don't meet to discuss computer use and definitely don't talk about information literacy. We are probably all doing the same things because we are being in-serviced with the same material" (Respondent 10). Another teacher at the same school further reinforces the self-belief felt by many teachers to comment on what is happening at their school with regards ICT as it pertains to enhancing information literacy by focusing on the students apparent engagement with ICT and his statement also refutes the principal's statement of open and honest dialogue on this issue:

Are you familiar with how other teachers are using computers to enhance information literacy?

I know the older classes, Year 6 especially, use them a lot for integrated units. I think she does Webquests and gives them sites to research. I suppose it's up to you personally to find the sites and then to give the students the opportunity to use them. Certainly they are being used in the older grades and I've got this view by walking past and observing what they're doing. We really don't get the opportunity to talk at a meeting or anything (Respondent 19).

4.4 Practical considerations

This section will examine some practical considerations that were expressed by respondents when they were asked to consider the hypothesis, which is that information literacy is the nexus between accessing information and the creative acquisition of knowledge and that the teaching of a structured information literacy program therefore, should be an educational imperative. Although this section does not singularly address a specific research question, it does primarily seek to elaborate and clarify the teachers' perceptions of information literacy, therefore addressing research question one that seeks to investigate *what is a teacher's perception of the term 'information literacy'?* Associated with a teacher's appreciation of the practical considerations for implementing information literacy programs, is the teacher's own information literacy competency. This aspect addresses research question three which investigates *how, when and why teachers acquire information literacy skills.*

4.4.1 Impediments in the incorporation and implementation of information literacy in the school-based curriculum – access to reliable ICT

The Internet can be viewed concurrently as a panacea and a dilemma for students and teachers alike; at the same time that it is making information available in so much volume, there appears a fear and trepidation among many teachers of the role the Internet should play in their teaching and learning programs because of the uncertainty about the quality of much of the content. One teacher in an English study stated "that is precisely why I won't use the Internet...there's too

much (information) and they (the children) don't know what to do with it" (Pritchard & Cartwright, 2004, p. 163). One would assume that is precisely why information literacy should be taught.

All principals interviewed commented on the need for schools to be provided with funding to provide ICT support personnel to allow ICT to be fully functional. The need to maintain reliable ICT infrastructure was a common theme in conversations with teachers indicating that for many of them, it is the biggest challenge in incorporating ICT into teaching and learning programs. This concern should be viewed in the context of most ICT use in the schools included in this sample where, more often than not, the teacher is in a lab situation with a class of 30 and cannot afford to allow technology to be unreliable. One principal made the comment that reflects this concern:

> I believe we are providing staff in specialist roles of teaching and learning and Religious Education and Special Education but it's such a huge area now that we need funding from the Catholic Education Office level because we really can't fund it from our budget for an Information Communication Technology officer because it's an important part of our curriculum. The position needs to be tied to technology and information literacy and this would enhance the position and give it depth and Information Communication Technology would not just be a tool but it would be very much embedded in our curriculum (Respondent 8).

Although only one of the seven schools employed a full-time computer technician – with the other six schools being serviced by a technician from between two hours to six hours a week – there was very little concern expressed by teachers regarding the unreliability of ICT as being a hindrance to information literacy engagements. One teacher (Respondent 15) from

the large urban school that does employ the full-time technician did state the benefits to his planning from this expertise when he stated:

> We are lucky that we have a computer technician that through his understanding and knowledge the children are skilled in the technology. We collaborate a lot and he will find relevant sites for any unit. I do the information side of the computers; he does the technology side of things.

4.4.2 Impediments in the incorporation and implementation of information literacy in the school-based curriculum –the construction of knowledge in a crowded curriculum

Teachers are expected to be involved in imparting at least eight key learning areas and some believe that it is timely to consider the depth of knowledge that students are expected to engage, rather than the current perception of offering an ever-increasing scope of information experience, a smattering of numerous traditional and contemporary curricula. A principal highlighted this point quite succinctly by saying "oh certainly knowledge is being created but perhaps we need to shift the emphasis to that rather than adding more to an already overcrowded curriculum" (Respondent 11). Another principal made a statement that supported the view that the curriculum is currently far too broad, with the consequence to the teacher of having to prioritise what they consider the 'essential learnings' whilst still catering in an ever-diminishing time-table allocation, an engagement with teaching and learning opportunities that may not promote the opportunities for information literacy engagements:

> Information literacy is just lost in the everyday demands of a busy classroom and I don't think it's a deliberate or malicious act but it is a consequence of the reality of goal-posts changing for teachers and perhaps it's why students are lost when they get to high-school. Maybe that's the connection of the question, 'Why are we doing this?' If a kid asks this question then I believe the teacher

> isn't doing their job but given the scope of teaching, that would be an ideal. You need to present your work in a way that won't give rise to such a question, but we're talking about the ideal (Respondent 17).

One respondent expressed beautifully the notion of successful curriculum reform by stating, "Well, it's (information literacy) like a lot of things; if we think that there is value in pursuing it in the classroom then we have no problem in having it as an assessment outcome." (R11).

4.4.3 The influence of the home and a student's age in information engagement

The role of the home is perceived by many teachers as being important in the creation of knowledge by their students. One teacher of 20 years experience stated "I know some of the children in my class can create knowledge because they are always questioning and they come from homes where questions are talked about and the parents allow for the children to try to understand another person's point of view" (Respondent 6). Another teacher, when asked the question how would they, as a teacher, describe their students use of computers in the classroom, stated "the children are quite confident, but, as I said earlier, they need a lot of structure and guidance if they use computers for information literacy. They are a lot more confident with using computers for games, but they get that from, and at, home" (Respondent 16).

An experienced Assistant Principal (Respondent 18) who was currently teaching Prep concurred with the explicit reference many teachers were making to the importance of the home in developing the environment for information engagement, although she also referred to the development of such practices at home as being somewhat representative of genetic influences:

> Children with a positive literacy experience are the ones that pick up on cues a lot easier and they are the ones that get further each year. They're the ones where their home environment allows for a lot of talking and learning going on at home. I think probably the home environment is very important for this skill. In some families there is also possibly a hereditary factor because

generally there are the same sorts of problems with literacy and some aspects of learning often being seen in children from the same family. I'd probably say that it could be related to intelligence, but I've seen exceptions to their response to information and taking it in.

Another teacher confirmed the influence of the home in a child's confidence with computer engagement generally, not necessarily for educational or information literacy processing by saying:

> Now everyone's got one (computer) at home so I think they are now far more confident and each year is better than the previous year. At the start of each year, as a matter of interest I usually ask who has a computer at home and this year only one, possibly two don't have Internet at home, while with previous years there was a lot more who didn't (Respondent 13).

A teacher of 30 years teaching experience in all year levels at primary school referred strongly to the role of the home in developing in children, an environment of enquiry she felt intrinsic to knowledge creation strategies that would be introduced throughout a child's formal education experience:

> *Do you believe that the children have the skills to create knowledge*
>
> Very limited at this age (*Year 1*). I think some of them would have a better ability than others because of their home background. Some of them would be quite capable of looking up things on the Internet at home I would imagine, some wouldn't have that access at home, some wouldn't be allowed to use the Internet or computer a great deal at home. I'm sure some homes would have more books than others (Respondent 7).

Another teacher implied strongly that age and home were two crucial factors in a child's intrinsic ability to be assisted at school with knowledge creation:

> *In what ways can learners develop and display discernment, judgement and discrimination when accessing information in the global scale.*
>
> I think that takes guidance and children are advantaged if they live in a rich home environment where questions are asked; I think it's important that questioning takes place and it's important that we take things below the surface level. I think questioning is one of the most important things, making sure you know what discernment is. Whatever you do in the classroom don't leave it at the superficial level; take it deeper. I think that is the be all and end all for a lot of our learning.
>
> *And the discrimination and judgement is an age or expertise factor?*
>
> They do it at a different level. A conversation with a three year old would amaze you at their level of discernment and sometimes when children start school it actually inhibits a natural ability to discern. Some have stronger instincts in this area though there is often an inhibition displayed in their conversation and communication (Respondent 8)

The home, therefore, is referred to by the vast majority of teachers as being a prime factor in a student's development of two attributes intrinsic to the development of information literacy: discernment and discrimination. An experienced teacher reiterated this perspective by stating:

> I think the kids who have better discernment and judgement come from homes where their mothers and fathers actually display and model better discernment and judgement. But I think it's something that we should be teaching, and it's dangerous to only assume they know and they have the skills (Respondent 12).

4.5 Aligning Englebart's Augmentation Conceptual Framework with research question themes.

4.5.1 Research Question 1: What is a teacher's perception of the term 'information literacy'?

The primary artefacts or objects that a teacher perceives needs to be manipulated in any information literacy engagement reflects available technology. If a teacher's self-efficacy with ICT is low, it would be assumed their perception of creating an information literacy teaching and learning program will be compromised. However, the corollary was not necessarily evident; teachers who interview as being highly proficient and capable users of ICT, both in a social/recreational aspect and in their educational use of ICT, do not describe their competency with teaching information literacy as being laudable.

Common language used by teachers when being asked to describe their perception of information literacy include: 'computers'; 'confused'; 'resources'; 'Internet'; 'project'. This language confirms an awareness by respondents of the investigative nature of information literacy, especially online investigation using the Internet. The most common and prevailing theme in an analysis of language and a teacher's perception of information literacy is a strong association with ICT. The library, texts and other media, including television and radio, were secondary considerations, if mentioned at all.

Methodologies used by teachers in endeavouring to make sense of information literacy were somewhat shallow and most respondents confirmed their failure to understand the term stemmed from a lack of professional development, insufficient guidance by school leaders and being too busy to investigate the term. The theme of dependence 'upon others' higher up the chain of responsibility was common for both teacher and principal groups. This was surprising given the expectation of school-based curriculum design implies a level of skills in

the investigation of aspects of curriculum reform that have explicit reporting obligations. The attitude of 'passing the buck' should, however, be viewed in the context of the considerable extent of curriculum reform expected in schools during the last decade.

Training issues pertaining to a teacher's perception of information literacy were extremely apparent when analysing the interview transcripts. Common themes include confusion of the term due to an absence of any explicit professional development in the area, and the opinion that professional development in related curriculum reform that includes Essential Learnings and the productive pedagogies that supported curriculum reform in some schools, were timely but implemented too fast. There was also a common call for increased ICT training or support. No teacher made reference to increasing library or ICT budgets, which may imply that teachers believe existing resource bases are sufficient for resource-based teaching and learning, however, there is a need for enhanced trained personnel to assist in information literacy engagements.

4.5.2 Research Question 2: What do teachers discuss when engaged in curriculum reform especially in relation to information literacy?

Common reference was made to access to a computer laboratory for Internet access that supported resource-based teaching. Although many teachers referred to in-class use of computers to enhance information literacy skill development, there was universal acceptance of computer rooms or 'laboratories' as providing the physical environment most conducive for using ICT to engage with information.

Many teachers made reference to language including: 'syllabus'; *Essential Learnings'*; 'reports' and 'reporting'; 'staff meetings'; 'professional development days' and 'collaboration' in the context of curriculum reform. There appears to be a culture, or an

expectation at least, that teachers meet regularly to discuss teaching and learning programs. This has positive implications for future directions in communicating and implementing school-based information literacy teaching and learning programs.

Most teachers, although meeting regularly for staff or team meetings, were unaware of the nature of teaching in other classes apart from casual observation or conversation. Apart from specific goal-centred tasks that are accountable such as unit and term overviews. Procedures and methods in schools were not appearing to be enhancing curriculum reform, with many teachers being quite dismissive of reforms that they perceive to be too theoretical. For information literacy to be promoted in such a climate, teachers will need to be assured that the program has a structure and intent that enhances student learning and is able to be reported on.

Training in aspects of curriculum reform was commonly agreed by respondents as being generally interesting and relevant. This was conditioned by the view that any such professional development was part of a school initiative, allowing for teams or staff to discuss and apply new learning in a fairly concrete manner. Therefore, any information literacy professional development would need to reflect obvious advantages to all teachers who could use processes in their classrooms and be able to discuss the implementation in teams or in staff meetings.

4.5.3 Research Question 3: How, when and why do teachers currently acquire information literacy skills?

Most teachers made reference to the home as being a very important environment in any student's level of ICT proficiency, which is linked implicitly to most teachers' understanding of information literacy. School leaders were referred to as being first contacts for clarification

of the term, although some teachers suggested they would need to be involved in their own research because they believed the school leadership team was not able to articulate a definition that could be used in designing a program that could then assess a student's competency in information literacy. Because almost all respondents correlated information literacy with ICT, training in ICT was a common theme that relates to the aspect of artefact and how, when and why teachers acquire an appreciation of information literacy. The fact that information literacy was included within the English key learning area on the reporting template generated considerable confusion amongst all respondents because of their association with the computer, as an artefact, with information literacy.

The language used by respondents in addressing how, when and why they acquire information literacy skills is characterised by reference to being obligated to report on the term as part of a common reporting format. Most teachers, irrespective of experience, stated that they were ignorant of the term until it appeared on the report template and that they relied on their school leaders for advice and guidance. Although most then confirmed that their school did not appear to define the term adequately enough for reporting to be authentic and have sufficient integrity.

The common theme of ignorance, with regards to an understanding of information literacy and how to teach to judge whether a student is information literate, implies teacher training is not presenting information literacy as a teachable set of process-oriented skills. Nor is the Catholic Education Office offering any professional development in allowing teachers to acquire an understanding of the various information literacy models. Methods of introducing teachers to the term and procedures to ascertain the implementation of information literacy skills within teaching and learning programs do not appear to be in place. It appears that the

acquisition of an unambiguous appreciation of information literacy as a set of process-oriented teachable skills has been absent in all levels of learning and teaching.

4.6 Summary of Chapter 4

Chapter four considered closely the data collected in the light of the three research questions that deal with teacher perception of the term, 'information literacy', the nature of discourse with regards curriculum reform and finally the teacher's own recognition of any acquisition of information literacy skills. Englebart's Augmentation Conceptual framework assisted in devising questions that not only aligned teachers' responses according to artefact, language, methodology or training, but it also positioned the analysis well in the context of the qualitative analysis methodology that supported the investigation. This structure has allowed the researcher to confirm four significant conclusions.

Firstly, in almost all interviews, respondents associated information literacy extremely closely with ICT. This has implications for embedding any information literacy engagements in any teaching and learning program because of the poor self-efficacy issues that many teachers associate with the educational use of ICT. The Internet was referred to as both a heavily used information source, and a source that was wasteful of time and resources (printing copious amounts of paper). ICT is viewed as generally conducive to educational improvement, but with reservations including accessibility, dependability and supervision. This aspect of associating ICT to information literacy is associated with research question one.

Secondly, and related to research question one that explores a teacher's perception of information literacy, teachers perceived knowledge creation as being secondary to their role as providing students with a strong appreciation of foundational skills, especially in literacy

and numeracy. Risk-taking was generally perceived as being wasteful in the overall goal of ensuring student exited primary school with a strong foundation in these two learning areas. There were clear indications from teachers that immaturity of students obviated any real opportunity for independent information engagements that are related to being information literate.

Thirdly, regardless of the grade taught, location or size of the school or teaching experience, teachers were concerned that a child's literacy skills are intrinsic to any effective information engagement. This supposition leads to the conclusion that there is a need for only minimal professional development or guidance in this area of defining the term, information literacy, in the context of 'literacy', for the term to be more fully accepted and implemented by teachers. Previous professional developments in disseminating a clear understanding of reporting guidelines generally, and information literacy in particular have been insufficient. This relates to research question two in that teachers' perceptions of information literacy, have been influenced by a lack of clarity from professional development opportunities or employing authorities directives, with minimal opportunity for teachers to have discussed curriculum reform as it pertains to information literacy.

It was clear that teachers were creating their own class teaching and learning programs with some regard to guiding curriculum documents, however, teachers were looking, in some cases quite desperately, for guidance in implementing design that is pedagogically productive and academically rigorous. Reform processes that teachers believe are conducive to enhancing the curriculum, such as the *Essential Learnings* framework are viewed generally positively provided the intent is clear.

Fourthly and lastly, teachers were unanimous in their bafflement at the term, information literacy, although their attempts at defining the term were generally very true to information literacy's intent. This addresses research question three that was intended to investigate how, where and when teachers acquired skills in being information literate. There was some suggestion from teachers that these skills are already taught and are age dependent, which aligns with research question one's investigation - a teacher's perception of information literacy – but generally, such a response was clarified by too many statements that led the researcher to believe the teachers had not been explicitly taught information literacy skills and consequently, were unsure or dismissive of the need to teach the skills explicitly.

A vast majority of respondents involved in this study suggested that information literacy should be an important aspect of their class and school curriculum, especially given the influence and acceptance of inquiry-based teaching and learning philosophies and programs already existing in schools. There was also general, if not universal agreement that the fundamentals of the term, teaching students to be skilled investigators in an information rich environment culminating in the creation of knowledge that is meaningful to them, complements an effective, contemporary classroom pedagogy.

An analysis of interview scripts highlighted a concern among teachers of a lack of professional development and guidance from employing bodies regarding curriculum structure. None of the respondents could recall explicit teaching during pre-service university studies in information literacy since being employed and vast majority of teachers involved in this study could not recall any professional development that would have enhanced information literacy skills program development. For some respondents, there appeared the attitude that such skills are already being taught explicitly within a number of key learning areas, especially in English, SOSE, ICT and, to a degree, Science. Other respondents appeared a little overwhelmed by the curriculum reforms characterised by *Essential*

Learnings and characterised information literacy as somewhat intangible, due to the associated with *Essential Learnings*, because of a lack of structure, application and influence in their own education, whether that be their schooling, teacher education or professional development as a teacher.

For many teachers, the first time they encountered the term, information literacy, was when it appeared on the 2006 reports. No respondent recalled any professional development being offered on the term with some teachers resorting to their own investigations of the term due to lack of guidance from school leaders. Teachers who took the effort to undertake their own investigations of information literacy, either to clarify the term for reporting purposes or to be prepared for the study's interview, appeared emphatic regarding the importance and relevance of information literacy. The majority of teachers, however, were not confident when discussing the term specifically and, although most highlighted the importance of creating circumstances for students to be autonomous in the creation of knowledge, appeared somewhat embarrassed in being unable to articulate their own approach to teaching information literacy, with most referring to ICT as conversations developed.

For information literacy to be an educational imperative, it must be more than mandated on a common report because evidence from this study concludes the school's report on this element (in 2006 and 2007 it was located within the English reporting area) will be shallow and flawed if the corresponding supporting evidence does not reflect the intricacies of the term. Rather, information literacy requires a structure and professional development focus that currently does not exist, nor has it apparently ever existed. Most teachers interviewed are encouraged to incorporate productive pedagogies in their curriculum planning and all have access to well-resourced school libraries and Internet access. Resource-based teaching and learning, however, was not viewed by most teachers as an obvious element of their planning,

with many teachers referring to their own lack of self-efficacy in the information environment as the reason for providing a somewhat narrow and 'filtered' information base for student acquisition of knowledge. There is, therefore, much work to be done to enhance a teacher's self-efficacy with information engagement if their own information investigative engagement paradigm is to be aligned with the ideals of various information literacy models.

What are your feelings about the teaching of information literacy?

(Pause)...I guess it's about how it is done. Over the past few years teachers have been recently so overwhelmed, and if you walked into a staffroom now and said 'right, this is the next wave in education', I could see staff viewing it as another wave that is affecting education a collective sigh would go around the staffroom with staff needing to take a back step and instead to apply one or two things to improve the quality learning and there is a need to reflect. Whether information literacy encompasses all and can be effectively integrated or not I suspect is up to us to solve; we might be waiting a while for guidance (Respondent 3).

Are you familiar with how other teachers are using computers to enhance information literacy?

Through listening and through observation, through seeing what is produced and...(pause)...Teachers are historically mind-settled into a classroom and they close the doors and stay there. A lot of things that are supposed to happen don't happen. Teachers do what they need to do to survive and it's important that they have experience in other classes and are challenged in seeing how other teachers incorporate things like computers, because it is a sharing profession (Respondent 11).

5. Introduction and overview

The conclusions expressed in this chapter relate to the hypothesis that:

> ***information literacy is the nexus between accessing information and the creative acquisition of knowledge, and that the teaching of a structured information literacy program, therefore, is an educational imperative.***

This section will confirm that there has been an original contribution made to the literature in the field of information literacy by presenting findings and asserting associated implications that relate explicitly to the following three research questions that have guided this thesis:

1. **What is a teacher's perception of the term 'information literacy'?**
2. **What do teachers discuss when engaged in curriculum reform especially in relation to information literacy?**
3. **How, when and why do teachers currently acquire information literacy skills?**

The conclusion will culminate in establishing its significance with the intent of offering insights that may lead the way forward to a more productive future in information literacy engagements. This will be accomplished by outlining findings and implications from the study that have relevance to pedagogy, curriculum design and research.

5.1 Teacher perception of information literacy

5.1.1 Findings

Almost all early childhood teachers who were interviewed in this study inferred that there were distinct difficulties in engaging children with both ICT and information literacy. In comparison, few middle and upper primary teachers appeared to express the feeling that such engagements were age-specific, instead referring strongly to the need for in-school technical support as an imperative. It was interesting to note all teachers interviewed suggesting a need

to provide resource-rich environments for children; engagements in which are highly structured, controlled and incorporating skills of discernment if possible.

A study by Bruce (2000) of educators' experience with information literacy concluded that they tended to categorise the term as being associated with information technology, information sources, information process and information control.

Donnelly states, "information is not knowledge and understanding is not wisdom. Downloading information from the Internet...can never replace the role of the teacher in engaging students and stimulating the excitement of learning" (Donnelly, 2007, August 4-5, p. 25). There was evidence from the interviews that reflected the strong perspective held by teachers that student use of ICT is sometimes a wasteful experience, both in physical materials and devotion to time allocation in a crowded curriculum. This perspective is viewed as a challenge to the effective incorporation of an information literacy program because this study concluded that well over 50% of teachers strongly aligned ICT with their definition of information literacy, and made substantive reference to ICT throughout the interview. A heartening aspect of this study that tends to counter this perception of negativity associated with information literacy through its intrinsic, symbiotic relationship with ICT is the conclusion that over 80% of teachers interviewed in this study expressed positive feelings about the possible educational applications of ICT.

5.1.2 Implications

Rather than limiting the teaching of information literacy to middle and upper primary students, it may be more productive to view the term as a means of knowledge creation, providing skills for children in becoming more proficient users and transformers of information. It is the personalised and interpretative nature of 'free-to-air' information that is

both a curse and a blessing for upper primary teachers as they endeavour to engage their students in problem-based information literacy forays.

Teachers need to have a firm grounding in knowledge formation and their role in ensuring students are skilled in creating knowledge in an information-rich environment and there is evidence from this study to confirm the strong alignment most teachers have with ICT as being intrinsically linked with information literacy. Education has always been associated with personalising knowledge creation and the influence of technology can be a tremendous boon to teachers who have always been effective because of their passion to lift their students to new levels of self-awareness. ICT needs to be framed in this context; as a tool of enlightenment, an instrument that assists investigations.

The challenge is to ensure ICT and information literacy are not viewed as an 'extra add-on' in an already crowded curriculum, but more an essential strategy or tool that is subsumed in a comprehensive school curriculum, reflecting national and state departmental guidelines in curriculum visionary documents.

5.2 The nature of teacher discussion when engaged in curriculum reform

5.2.1 Findings

Curriculum reform was recognised as being a significant, constant and continuing aspect of a teacher's life, regardless of school location and size. A concern regarding the lack of uniformity, influence and/or direction of the curriculum was expressed by all teachers in the large urban school, one half of teachers interviewed in the small urban schools and only one third of the small rural schools. Smaller, rural schools had a greater percentage of younger, less experienced teachers, predominantly better prepared to plan using the *Essential*

Learnings Frameworks (2002; 2003), although the smaller rural schools also were characterised by a strong affiliation with national curriculum documents, providing a clear platform to then marry *Essential Learnings* elements in the creation of teaching and learning programs.

Although the vast majority of teachers interviewed considered the *Essential Learnings* frameworks (2002; 2003) as positive philosophical frameworks, most expressed concerns at the poor delivery of professional development in the area, that the implementation was generally too fast and inconsistent across schools, with one third of teachers stating a belief that they were forced to be self-taught in *Essential Learnings* because of poor professional development or limited opportunities for professional development.

Curriculum in Tasmania has undergone considerable transformation over the last seven years, with current initiatives regarding the implementation of the various syllabuses associated with the new *Tasmanian Curriculum* (Department of Education, Tasmania, 2007a; 2007b) further consolidating this notion of 'change as a constant' among all Tasmanian teachers. There are no doubts that the schools that were involved in this study were experiencing quite dramatic, important and generally welcome curriculum reform. The curriculum reforms were indicative of curriculum change in the entire education sector in Tasmania and reflected a global movement toward student-centred learning and inquiry-based learning that had been on the education agenda in Australia most recently as early as 1989 with the 1989 Hobart Declaration on Schooling (*The Hobart declaration on schooling*, November 28, 2000), in 1991 with the Finn Report (Australian Education Council Review Committee, 1991) in 1992 with the Mayer Report (Mayer, 1992) and more recently the *Adelaide Declaration On National Goals For Schooling In the Twenty-First Century* (1998).

5.2.2 Implications

ICT is viewed in this new *Tasmanian Curriculum* as being intrinsic to all key learning areas. This has, according to this study, clear associations by most teachers to their definition of information literacy and hence can act as an ideal conduit for enhancing information literacy teaching and learning programs across the curriculum. 80% of all teachers interviewed expressed positive feelings about the educational applications of ICT and information literacy. Therefore, carefully constructed information literacy programs can reflect current *Tasmanian Curriculum* philosophical frameworks and marry well with the various statements of learnings produced by the Curriculum Corporation in 2006 that are proposed by the commonwealth government as part of their initiatives in the area of curriculum reform.

The implications for any professional development in information literacy are clear:

- Ensure all staff receive the same professional development.
- Confirm that school curriculum documents are well structured and academically sound, integrating professional development opportunities explicitly to teaching and learning programs that satisfy curriculum outcomes.
- Reinforce the involvement in these activities by highlighting the professional benefits of involvement and emphasising that the implementation of new learning from professional development will result in an enhancement of a student's resilience in information seeking behaviour that is associated with acquiring the necessary skills in being information literate.

There is evidence that supports the view that "teachers need to be involved in conceptualising the curriculum in the initial phases of any developmental process" (Watt, 2006, p. 33). Bruce (2002) highlights a number of essential mechanisms that allow for learning, application and reflection of any reform or implementation process, which together help ensure successful

curriculum reform. These recommendations are confirmed by the analysis of teacher interviews that were conducted as part of this study and are identified as:

1 Resources to encourage and support the acquisition of important skills.
2 The integration of aspects of the curriculum so new learning is not pigeon-holed or categorised and is instead viewed as a transferable skill, part of a process for learning in general.
3 The development of curriculum that ensures skill acquisition is applied in different contexts.
4 The provision of opportunities for critiquing reform.

5.3 How, when and why teachers acquire information literacy skills

5.3.1 Findings

This study has identified correlations between an enhanced sense of collaboration and the length of teaching service. Teachers from all schools strongly expressed a sense of confusion and a lack of adequate professional development with regards ICT and information literacy; references to inadequacy with regards professional development were expressed by half of all participants across all cohorts.

5.3.2 Implications

If information literacy is to be embraced by primary school teachers as an essential element in their inquiry-based teaching and learning programs then, it can seen from results of this study that they need to be informed about existing models and standards that give the term a tangible, 'teachable' structure. Information engagement practices that accord with any information literacy model, need to be experienced by students regularly and across the disciplines. Bruce supports this when she states "it is bringing these information practices

into the curriculum, and ensuring students have the capabilities to engage in, and reflect upon such practices, that constitutes information literacy" (Bruce, 2002, p. 4).

To be effectively incorporated within current curriculum reforms, information literacy requires considerable collaboration and will rely on matching teachers with colleagues who are accepting of change and appreciative of incorporating new technologies, which appears to characterise teachers of relatively minimal teaching experience. There is, therefore, a challenge for school leaders to align experienced teachers, who have interviewed as possessing the greatest sense of collaboration, with the less experienced teacher who, although not appearing to have the same sense of collaboration, nonetheless express the greatest enthusiasm and confidence in the incorporation of ICT.

For information literacy to be easily incorporated in teaching and learning programs, the term needs to be defined and discussed with teachers and by teachers in their contexts. This study indicates there has been minimal guidance provided by the Catholic Education Office regarding defining information literacy and situating it in the curriculum. This is revealed by the inadequate teaching, assessment and reporting on this key aspect of the curriculum.

The acquisition of information literacy skills involves more than offering professional development to teachers. Similarly, it would be a futile aspirational goal for teacher-librarians or library staff to lead information literacy in the school because for many schools the position of teacher-librarian or librarian is not a reality; one school out of seven involved in this study had a fulltime position of teacher-librarian or librarian. Incorporating an information literacy program across a school curriculum, and in all programs and services, requires the collaborative efforts and pooling of experience and expertise in information engagement of teachers, staff developers, learning advisers, librarians and administrators

(Information Literacy Standards, 2001). In addition to investigating student engagement with information literacy, it is important to include the following four groups of educators in both professional development opportunities and the research planning, because it is through their appreciation of the curriculum that:

- teachers establish the context for learning.
- librarians coordinate the evaluation and selection of intellectual resources for programs and services.
- learning advisers help develop alternate learning strategies.
- administrators and staff developers facilitate opportunities for collaboration and staff development.

5.3.3 Address to the hypothesis

The hypothesis of this thesis suggests information literacy is the nexus between accessing information and the creative acquisition of knowledge and that the teaching of a structured information literacy program is an educational imperative. The hypothesis was investigated using three research questions, which will form the structure of the response to this section.

Research question one explored a teacher's perception of the term 'information literacy'. An analysis of interview transcripts and the literature on the subject confirmed a strong feeling of ambiguity of the term by teachers (Bruce, 2000; Limberg, 2000; Moore, 2002). The postmodern approach was taken as a philosophical framework for this data gathering because it does allow for an acceptance of various perspectives (Wiersma, 1995). Since interviewing is the technique that is used for gathering data, the postmodern framework allows for the interview to accommodate individual school contexts and support the interviewees' perceptions that what they have to say is important.

Teachers have not been informed professionally of the term and believe the term to be closely aligned, intrinsically linked to ICT, rather than being subsumed within the English key learning area. Teachers are currently and have been involved in considerable curriculum change for the past five years at least and whilst many teachers are embracing the initiatives that include clear and unambiguous English and Mathematics syllabuses, a few alluded to information literacy perhaps being just another 'buzz word'. Therefore, generally the perception held by teachers of the term information literacy is ambiguous. This is supported by the literature (Fogget, 2002; Cass, 2004; Henri & Asselin, 2005) that has been highlighted in this study and whilst many teachers acknowledged the educational benefits that would accrue from the inclusion of an explicit information literacy program in their schools, there is significant uncertainty surrounding the term that comprises a realisation of this study's hypothesis.

Research question two investigated what teachers discuss when engaged in curriculum reform and it was apparent that all teachers were intimately involved in quite substantial curriculum reform; reform that was generally viewed as overdue and timely. Teachers were united and consistent in their interest in achieving a degree of conformity of curriculum and most looked to the employing body and the school leadership team for decisive and clear direction, which is supported by literature in the field (Webb & Vulliamy, 1999; Remillard, 2000; Drake & Sherin, 2006). Teachers did not appear to be focused on explicitly teaching information literacy with many referring to the term being catered for within existing programs. However, upon discussion and appreciating the nature of information literacy, many teachers believed an information literacy skills program would be a worthy inclusion in the curriculum, provided there was guidance and monitoring.

With the ongoing discussions about a national curriculum, this thesis proposes the view that for some teachers, education may become more 'structured' as education becomes far more standardized than it currently exists. McGregor's (2005) notion of students' managing knowledge was highlighted. This notion contrasted to the postmodern, constructivist perspective that has teachers involved in knowledge management. and is supported by the postmodern view held by Jarvis, Holford and Griffon (2003, p.11) who state in relation to curriculum reform and the presentation of knowledge therein, that "by the 1990's, it was generally recognized that these efforts had failed and that there is just too much knowledge to get into every curriculum...the idea of curriculum is therefore now of limited value". This perspective was used to complement the aspect of investigation related to question two of this thesis, which examined what teachers discuss in the context of curriculum reform, as it has epistemological connotations that are subsumed to this question.

Research question three considered how, when and why teachers currently acquire information literacy skills. Teachers were unequivocal in their responses to this question; none could recall any professional development in information literacy and the few who could recall any reference to information literacy that was part of pre-service teacher education at university aligned the term to ICT or a shallow interpretation of media studies. An analysis of interview transcripts also confirms literature (Hargreaves, 1994; Webb & Vulliamy, 1996; Vulliamy, Kimonen, Nevalainen & Webb, 1997; Hattie, 2003) that highlights how communication in the form of professional dialogue between teachers is compromised in the reality of a typical busy teaching day. Literature (Coad, 2002; Lewin, 2004) was referred to that confirmed the good work undertaken to inform teachers of information literacy, however, most literature (Fetters, Czerniak, Fish & Shawberry, 2002; Bundy, 2004b; Key, 2005) confirms the results of this study; teachers are not being informed of the possible enhanced educational outcomes that should accrue from engagement in an

explicit information literacy program and therefore resist, albeit passively, the change process.

Poststructuralists place importance of meaning and language within a subject's context (Norris, 1990, p. 44). The deconstruction of the data used in this research is a postmodern device (Gilbert, 1997), and used Englebart's Augmentation Conceptual framework because it provided a means for this researcher to analyse both 'the parts', whilst being aware of the relationship with 'the whole' (Beilharz, 1991, p. 53). Poststructuralism allows for meaning-making to be viewed and analysed according to the social and political context in which they operate. There is, therefore, a subjective reality that underpins postructuralism that allows conversation between researcher and respondent to be authentic and personal. It was important, therefore, for the analysis to be guided by careful selection of questions that were aimed at eliciting honest responses from a unique personal perspective.

This research has provided evidence that teachers are aware of the need to incorporate process-oriented teaching and learning programs that allow students to engage effectively with information sources, using a varied and broad information base in an information-rich learning environment. This thesis, too, has highlighted that most teachers feel that the ambiguity that surrounds the term, 'information literacy', has prevented them from incorporating explicit teaching of this term within the curriculum. It became evident that teacher conversation with regards implementing existing information literacy models and programs has been further compromised by a lack of professional learning offered in this area. Teachers involved in this research were all looking for ways to ensure their students were maximizing their potential and ranked current curriculum reform as being useful in allowing them opportunities to allow students to be creative and independent thinkers. Therefore, the researcher believes the hypothesis that "information literacy is the nexus

between accessing information and the creative acquisition of knowledge and that the teaching of a structured information literacy program is an educational imperative", has been confirmed.

5.4 Significance of this study: Future prospects for information literacy

5.4.1 An epistemological reappraisal to promote deep, rich learning

With the proliferation of ease of access to online information sources via the internet, it is obvious that information has never been more readily available; nor has it ever been so overwhelming in depth and scope and source of authority. The challenge seen by this research is for teachers and school leaders in the primary school to gain sufficient awareness of strategies that can be implemented in order for today's students to be literate in such an information environment because, 'sheer abundance of information and technology will not in itself create more informed citizens *without* a complementary understanding and capacity to use information effectively' (Bundy, 2004a, p. 3). There is an obligation for teachers to ensure their students are afforded life-skills, of which it could be argued that effective communication skills in the areas of information seeking, accessing, analysing and synthesising are of paramount importance. The significance, then, of information literacy instruction becomes evident because there is evidence to suggest information literacy programs enhance the participants' ability to seek "deep, rather than surface learning...and transform dependent learners into independent, self-directed, lifelong learners" (Bruce, 2002, p. 5)

Information literacy to many educators is a somewhat abstract term, constantly evolving and not easily interpretable, which may explain why "many have difficulty teaching it" (Vine, 2006, ¶5). However, information literacy standards and guidelines have been developed and used in schools throughout the world, usually with the leadership of the library associations of each

respective country (Mokhtar and Majid, 2006; Neely, T. 2006), with the Australian and New Zealand Information Literacy Framework (Bundy, 2004a) being developed and revised, providing guiding principles and comprehensive elaborations for the six standards that assist with benchmarking information literacy skills. To complement the departmental visionary documents, there exists a number of worthy information literacy frameworks such as *The Big Six* (Eisenburg & Berkowitz, 1996) and Kulthau's (1997) *Information Search Process.* Kapitzke's (2003) critiques on the various models of information literacy focuses on its neutralness and mathematical objectivity, which is contended as being out of touch with the social sciences origins of the term that relies on words like "process, and behaviour" (Kapitzke, 2003, p. 58). The uncertainty that surrounds the term from the perspective of teachers (Henri & Asselin, 2005), who are supposed to be engaging students in information literacy, supports the view that current programs are either pedagogically unappealing or do not have the profile that ensure teachers deem the teaching of which adds value to their teaching and learning programs.

This research project assessed the value placed in such models by teachers, especially with regard to data that concludes enhanced educational outcomes are initiated from the teacher and school providing a strong and integrated information literacy program as stated by Todd:

> There is evidence to suggest that information skills instruction makes an important contribution to the development of independent learners. Information skills instruction integrated into classroom content does contribute to the development of constructive thinkers, learners who take charge of their learning, ask the appropriate questions, seek information from a range of sources and restructure and repackage this information to create and communicate ideas that reflect their own deep understanding. (cited in Nimon, 1996, ¶12).

A study by Henri, Sui-Cheung, Fong-Lok, and Siu-Cheung (Henri, Sui-Cheung, Fong-Lok & Siu-Cheung, 2006, p. 7) that involved developing an information literacy framework for schools in Hong Kong found 95% of teacher respondents agreed that there was a need to educate for information literacy. However, it would be wrong to assume that there is one model and one pedagogy that is 'best practice' when teachers design and implement an information literacy program. This implies that there is a need for teachers to carefully consider various models that have been discussed in this study. This consideration, coupled with known and effective pedagogies in conjunction with available resources, would provide both the teacher and students with the essential framework that would make the teaching and learning of information an explicit teaching and learning component, complementing the teaching into existing key learning areas. A mountain of evidence (Wray & Lewis, 1997; Todd, 1998; Bowler, Large & Rejskind, 2001; Henri, 2005; Vine, 2006) supports the notion that simple scaffolding of these skills are essential if information literacy is to be a transferable and residual skill that students continue to engage in as they encounter investigations in an information-rich environment.

5.4.2 Recommendations arising from the findings

With the new Tasmanian Curriculum being implemented throughout Tasmanian schools, the opportunity emerges for education authorities to incorporate information literacy professional development. It was clearly evident from this research that teachers had no explicit teaching and learning program that enhanced the acquisition of information literacy skills by students. Teacher appreciation of knowledge formation by way of student engagement in information-rich tasks and programs can only be attained by the introduction of structured professional development in this area; an aspect that this study proved to be lacking.

ICT is viewed by the Tasmanian Department of Education and the Catholic Education Office, Hobart Diocese as possessing overarching influences. This is emphasised by the new Tasmanian Curriculum model, which accentuates ICT being integral to all identified learning areas and with the Catholic Education Office focus on ICT as the new curriculum priority area for 2009-2011. All teachers involved in this study associated information literacy with ICT and this has implications for the emerging curriculum reforms that emphasise ICT as being intrinsic to curriculum creation and delivery. Most teachers, however, expressed some doubt regarding their technical and, to an extent, their educational use and teaching of (pedagogy) ICT. Structured professional development in both the technical and pedagogical aspects of ICT are imperative if information literacy programs, using ICT as a tool in any information investigation, are to be effective in realising outcomes of helping students become autonomous learners in an information-rich environment.

Curriculum reform has been led by the Catholic Education Office in regards to providing professional development opportunities that align to a number of aspects that should enhance teacher performance. The onus on curriculum creation and delivery, however, are still very much the responsibility of the individual school. A conclusion of this study is that curriculum leadership needs to be given far more direction, financial support and structure by the Catholic Education Office, with specific details regarding interpretation of outcomes and pedagogy being the responsibility of the school. This study found that all teachers interviewed mentioned the detrimental effects of a lack of a common cohesive curriculum had on their engagement in the quite dramatic level of curriculum reform that has characterised education in Tasmania over the past decade.

Why, then, does it appear so difficult to teach information literacy? The following three reasons are all related to the power structure inherent in any process in the creation of curriculum:

- One reason relates strongly to the lack of emphasis given by the Catholic Education Office in providing clear explicit definitions of and structure for any program during a period of far-reaching curriculum reform where teachers are expected to create their own curriculum.
- A second reason reflects the lack of teacher self-efficacy in the educational and technical aspects of ICT – a tool that is intrinsic to any information investigation in contemporary classrooms. Thoughtfully structured and managed professional development in this area, complemented by a common scope and sequence in ICT and available technical support were all recommendations made by teachers when discussing their own self-efficacy with ICT.
- And thirdly, as evident by interviews conducted for this study, teachers are new to the term, but are not new to the processes that are subsumed in any information literacy program. Carefully constructed professional development programs need to be developed and implemented by employing authorities and schools to ensure the mandate of reporting on information literacy has integrity, with accompanying evidence of student achievement in this area being qualified with data that reflects the engagement in structured information literacy teaching and learning programs.

5.4.3 Challenging the mindset of 'enclosed information'

This researcher defines 'enclosed information' to mean information that has traditionally been accessed by teachers in controlling the information engagement. Usually as a time-saving strategy, but increasingly being used to ensure students do not access inappropriate material via the internet, 'enclosed information' was referred to quite explicitly throughout

the conversations with the 23 teachers who were interviewed in this study. Sources that this researcher deems 'enclosed' and hence 'safe', would include textbooks, hard copies of encyclopaedias and non-fiction texts that have been purchased by the school and located, even retrieved by teachers for students to expedite their information literacy engagement.

This study discovered some reasons why is it then that so many teachers of primary school classes show minimal confidence in defining the term (Vine, 2006; Pritchard and Cartwright, 2004) and, subsequently, do not have teaching and learning programs that explicitly teach information literacy. When being challenged to create units of inquiry, many teachers appear reticent to get their students to engage with unsolicited sources available on the Internet. Many teachers spoke of the anxiety they felt in attempting to locate relevant, authoritative information sources online. It is only through an effective and enduring information literacy instruction program that all who are part of the school community, from parents to classroom teachers to school leadership teams, would have a strong foundation from which to deal with the information anxiety referred to in Wurman's research (Wurman, Leifer and Sume, 2001). This instructional program would free learning from the pre-packaged paradigm whereby students are almost completely dependent on their teachers for the provision of a narrow, prescribed and select information base that Breivik, although focusing on the higher education sector and not primary education specifically, condemned as early as 1998:

> Little in their (students') environment fosters active thinking or problem-solving. What problem solving does occur is (often) within artificially constructed and limited information environments...such exercises bear little resemblance to problem solving in the real world...Education needs a new model of learning – learning that is based on the information resources of the real world and learning that is active and integrated, not passive and

fragmented...What is called for is not a new information studies curriculum, but a restructuring of the learning process.

(Breivik, 1998, pp. 127 – 128).

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Appendix A Focus Questions

[The Focus Questions for the interviews are grouped according to the four basic classes of capabilities in Englebart's conceptual framework]

Training-the conditioning needed by the human being to bring his or her skills to the point where they are operationally effective.

1. What year level are you currently teaching? : Kindergarten Prep 1 2 3 4 5 6
2. What year levels have you taught in the last 10 years? Kindergarten Prep 1 2 3 4 5 6
3. How many years have you taught? : <2 2-5 5-10 >10
4. Most recent involvement in education tertiary studies in years: <2 2-5 5-10 >10
5. What was the nature or focus of this tertiary study?
6. Do you believe you receive sufficient professional development in curriculum design?
7. Describe how you have been informed about the Essential Learnings Frameworks.
8. How do you feel about the Essential Learnings Frameworks?

Language-the way in which the individual parcels out the picture of his or her world into the concepts that his or her mind uses to model that world, and the symbols that are attached to those concepts and used in consciously manipulating the concepts ("thinking").

1. Please explain how the classroom curriculum is constructed in your school.
2. Describe your feelings about teaching information literacy.
3. Do you believe it is possible to differentiate between information and knowledge?
4. Do you believe the children in your class have the skills to create knowledge?

5. In what ways can learners develop discernment, judgement and discrimination in accessing information on a global scale?

Methodology-the methods, procedures and strategies with which an individual organizes his or her goal-centred (problem-solving) activity.

1. Describe your approach to incorporating information resources in your planning.
2. Are you satisfied that knowledge is being created through your planning?
3. Do you incorporate information literacy in your classroom? – If you do, illustrate with examples of planning and the associated teaching and learning.
4. How do you feel about information literacy being a mandated element in the commonwealth government's reporting obligation?

Artefacts-physical objects designed to provide for human comfort, for the manipulation of things or materials, and for the manipulation of symbols.

1. On average, how many hours per week would you use a computer?

   <2 2-5 5-10 >10
2. Would you describe this weekly approximation to be used primarily for school or recreation?
3. Describe your confidence in the educational use of computers.
4. Illustrate how you incorporate computers in your classroom.
5. Is this computer use planned as part of curriculum objectives?
6. How would you describe your students' use of computers in your classroom?
7. Are you familiar with how other teachers are using computers to enhance information literacy?

Appendix B **Information sheet**

Information Sheet

UNIVERSITY OF TASMANIA

August 2006

Information Literacy: Communicating an 'Essential Learning'.

Chief Investigator: Dr Andrew Fluck

Investigators: Dr David Cole, Rod Linhart

Introduction

My name is Rod Linhart and I am a student of the University of Tasmania. This research is to assist me in my PhD studies in education.

Research aims – What is the purpose of this investigation?

This proposal seeks to investigate the extent to which information literacy is integrated within a curriculum created by participative decision-making based on teachers' interpretation of an innovative curriculum implementation. It is the intent of this research to investigate the factors that teachers engage in when involved with curriculum design and reform as it applies to interpreting and incorporating information literacy skills. The research is designed to investigate some of the multitude of factors that may influence an educator's implementation of curriculum reform as it applies to information literacy.

Fundamental to this investigation are the following questions:

1. What is a teacher's perception of the term 'information literacy'?
2. How, when and why do teachers currently acquire information literacy skills?
3. What do teachers discuss when engaged in curriculum reform?

What benefit will I, or others, achieve by being involved?

You are invited to participate in this study of curriculum design from the teacher's perspective because your involvement will allow the project to have an authentic 'teacher voice' in the creation of curriculum and should influence curriculum design in the future. This research is being conducted in five schools in the Launceston area, which form part of the Catholic Education Office responsibility, Hobart Archdiocese, and any teacher is invited to participate in the project.

What would my participation involve?

I would greatly appreciate your participation in this research by taking part in one audio taped interview of approximately 30 – 45 minutes. The venue and time of the interview is expected to be your school, however, there is scope to allow a change of venue if that is more convenient to you. It is anticipated that five teaching staff from your school, representing both genders and a variety of ages and experience will participate in a face-to face interview. Interview questions will focus on four areas: Training – ascertaining the education and skills held by the participant relevant to the topic; Language – how the participant interprets concepts associated with the topic; Methods – the procedures and strategies used by the participant to problem-solve issues related to the topic; Artefacts – understanding and use of physical objects related to the topic.

This information will be used as the basis of my PhD thesis. You will be sent a transcript of your interview and have seven days to comment back to the researcher if there is any aspect

of the interview that you wish to modify. These findings may also be used to publish a paper at some later date.

Please note that your participation is entirely voluntary, and evidenced by signing a consent form. In any case, you may decline to answer any question, and may withdraw at any time without penalty or consequences. If you choose to withdraw, you can elect to withdraw any data you have supplied.

Confidentiality and anonymity

Code numbers, rather than names, will be used for data records that are to be filed and retained for analysis, thus ensuring your contribution will remain anonymous and your confidentiality will be maintained. Although your contribution may be cited, it will be in a fashion that ensures that you and your school are not identifiable.

Data will be stored on compact disc and stored for five years in a secure location in the Faculty of Education, University of Tasmania. After five years, the discs will be erased.

Who can I contact if I have any concerns?

This project has received ethical approval from the Human Research Ethics Committee (Tasmania) Network. Please contact Marilyn Knott (Ethics Officer) of the Network (Marilyn.Knott@utas.edu.au) should there be any concerns about the nature and/or conduct of this research project. She can direct you to the Chair of the Committee that reviewed the research.

How do I express my willingness to participate?

If you would like to participate in this project, or have any queries in relation to it, you can contact me at home on 6334 1616 or at work on 6362 2323 or via email (linhart@intas.net.au) any time prior to the end of August. Alternatively you may contact my supervisor, Dr. Andrew Fluck on Andrew.Fluck@utas.edu.au or 63243284. You may also request further information from your principal.

Should you volunteer to be part of this study, you will be given copies of the information sheet and signed statement of informed consent to keep. As a participant you will be able to request a copy of the results in plain English.

Thank you for your consideration to participate in this research.

Dr Andrew Fluck, Chief Investigator Rod Linhart, Researcher

Appendix C Project Consent Form

Information Literacy: Communicating an 'Essential Learning'.

This is to certify that I, _____(print name), have read the information sheet about this project and agree to assist in this study.

- I have been provided with an information sheet about the nature and purpose of this study.
- I agree to participate in an audio-taped and transcribed 30 – 45 minute interview discussing the extent to which information literacy is integrated within the curriculum.
- I understand that code numbers, rather than names, will be used for data records that are to be filed and retained for analysis, thus ensuring my contribution will remain anonymous and my confidentiality will be maintained.
- I understand that I can refuse to answer specific questions without effect.
- I understand that I can ask to have feedback regarding the project communicated to me in an accessible format (see form below).
- I have been given the opportunity to ask questions and received satisfactory answers about the project.
- I understand that I can withdraw from the project at any time, without penalty or consequence.
- I understand that I will be sent a transcript of the interview and that I will have seven days to comment back to the researcher if I feel any aspect of the interview should be modified.
- I understand that neither I, nor my school, will be identified in any published report without specific consent.

Signature of participant Date

- - - -

Appendix D Transcript approval to respondent

January 2007.

Dear

Please find attached the transcript of the interview that was conducted late last year, which is related to some research regarding how teachers interpret and implement information literacy into their planning for teaching and learning.

I will be using the transcripts from the 23 interviews conducted in a qualitative analysis using coding and enquiry software that will assist me in ascertaining relationships between key investigations of the research that deal primarily with the three questions of:

1. What is a teacher's perception of the term 'information literacy'?
2. How, when and why do teachers currently acquire information literacy skills?
3. What do teachers discuss when engaged in curriculum reform?

Please read the transcript and notify me if there is any aspect of the transcript that you feel does not reflect your intent or if there is any part of the transcript that you would prefer removed. As stated previously, your involvement is completely confidential and no names will be used in the final thesis, nor is the transcript material discussed with anyone apart from my research supervisors, and even then, they are not informed of an individual's name or school.

Coding will commence on February 10 so please inform me of any need for change prior to this date. If you are content with the attached transcript there is no need to contact me to confirm your agreement to use the transcript as is.

Thank you again for your time and assistance in helping me with this research.

Kind regards,

Rod Linhart

linhart@intas.net.au

6334 1616 (Home)

6362 2323 (Work)

Appendix E Sample transcript – respondent 13

Respondent 13 (Teacher).

What year level are you currently teaching?

Year 3.

What year levels have you taught in the last 10 years?

Year 3.

How many years have you taught?

Seven.

What has been your most recent involvement in tertiary education?

Bachelor of Education (Honours)

What was the main focus for this study?

General Teaching

Do you feel you have had adequate professional development in curriculum design?

Oh no, I remember coming out and saying to a fellow graduate that I have no idea about what I'm going to do next year in the classroom. I do believe professional development has come ahead in leaps and bounds. I don't remember doing any in the first few years, although in the last couple of years we have been doing a lot of it, although I really don't know what is meant by curriculum design. I don't believe we do a lot of professional development in designing the curriculum, I wouldn't have thought teachers have been given a lot of development in this

area, it's more to do with learning and teaching. I think we do a lot in this area, but not curriculum design.

How have you been informed about the Essential Learnings framework?

As in what actually happened? Ok, I wasn't aware of it until 2001, so there was no such thing in University. In 2001 it was the first time it came up in the jargon, it came up in the staff meeting, lots of reading and handouts. The implementation of it was designed to be structured but it became so complex that the structure of it fell apart. I know initially the structures were put in place but along the way it fell apart. It was school based and personnel changed which didn't help.

How do you feel about the Essential Learnings framework?

...Um...I think that if teachers implemented it properly it would be a good thing but I feel that as teachers we didn't get the full picture, we didn't get a handle on it so there are sometimes where I don't do it very well and it was probably my fault or it could have been the structures. Essentially it is a good thing provided it is implemented properly. In my opinion I feel that it is a good thing. My colleague teacher and I have created some collaborative units together and he has been an enormous help to me because he was the guy who had all the in-service and helped the whole staff with Essential Learnings and had all the insights and if I didn't have his insights then I'd have a hell of a struggle with it. I quite like the idea of Essential Learnings but you can't escape the rumblings from a lot of teachers about it such as," It's just a rewording of what we've always done...it's full of jargon...we covered this 20 years ago...it's too wordy...the politicians' comments that it will be scraped". I do like the fact that it involves a deeper understanding of things.

Can you explain how your classroom curriculum is constructed?

...Well it's very much constructed on an individual level. Over the years it has changed but when I first started, and remember, I've been teaching the same grade for seven years, I basically took over what the previous teacher did and then I added some units and ideas myself so I did have input into the structure myself but I basically followed on from what happened in the previous years. But, saying that, I realised that I could have thrown all that out and come up with my own curriculum. However, over the past few years with Essential Learnings and collaborative planning we are more aware of the whole school approach to learning and more aware of what other classes are doing and there was a time when we all got together and soon became aware that some classes were doubling up so it's been an ongoing process and now because we are more aware of what others are doing, due to Essential Learnings, cooperative planning and professional development we are becoming less individualistic about what we do, pairing off with a grade or as a whole school and developed, gradually, more collaborativeness.

Could you explain you feelings about teaching information literacy.

...Oh...well...now I'm not really sure but is it to do with any bit of information that you gather, its all about what you gather, what you do with it, how you use it, where you get it from; its not just reading out of a book, its everything to do with information. Whatever I think I think I nailed it? I got that question right? I don't think I teach information literacy; no I don't think to myself, "Information Literacy, this is what I'm going to do". I think it happens without me being aware of my teaching, it just happens without me being aware so I suppose it is implicit.

Do you think it's possible to differentiate between knowledge and information?

What the hell sort of question is that?..Well, I would think so. Because wouldn't information literacy be whatever information you are taking in but knowledge is actually what you do with it? You can't comment but I think I've done it again. Knowledge is all about what you retain and what you do with that information, how you use that information.

Do you believe that the children have the skills to create knowledge

Yes, I think so but I guess I haven't planned for it but I think it just happens implicitly. Opportunities arise and it happens but I couldn't tell you that I plan for it with that in mind; maybe I should.

It what ways can learners develop and display discernment, judgement and discrimination when accessing information in the global scale.

...Well, I think it happens and it is already happening and I don't think it's because I'm teaching it, I think it's the natural course of things. They get a bit from me and get from before they come to me but it's what they get from before they come to me, from their parents or whatever; I think they can but in the natural course of things they are able to do it, some better than others. I'm not sure if I teach the skill or if it just presents itself and I'm not sure if I teach it deliberately and I know there are times where I have taught information literacy but I'm not sure if I had planned it. Recently we were looking at text on Aboriginal Tasmanians and they had to write responses to readings and come up with new titles and a lot of their responses have been interesting and high order and that hasn't come from me. I left it as an open-ended question and I was curious to see where it would lead; some responses were high order. We didn't focus on discrimination. It was me just wondering what they were thinking. I don't feel like I'm teaching this sort of skill but it's happening. I don't know whether they are getting the answers from sharing with their group or not.

Can you describe your approach to incorporating information resources in your planning?

I think the first thing I might do is think about what I personally have to support the unit and secondly, I investigate what is in the Library and thirdly, I would do the usual searches on the Internet. Generally I provide the resources or sources to the students but, really, when you think about it, we do the same sort of thing with the children. You ask the children if they have anything at home on the topic and if we go to the computer lab and ask them to do a search on the topic, although I usually skip the Library search because I have already got all the Library resources so it would be pointless, but I suppose they can browse themselves and access information on a personal level.

Are you satisfied that knowledge is being created in your classroom through your planning?

Yes, I guess I am because I keep on doing it.

Do you incorporate information literacy in your classroom?

Yes, but it is taught implicitly, I don't plan for it, it just happens. I don't sit down at the start of the unit and plan for it.

How do you feel about information literacy being mandated as a reporting element?

I'm not so sure that this school is doing it. My understanding is that it is not on our report, I think we got rid of it and because it's not something that I considered. The fact that it's been mandated I will probably give it more thought, but I don't think we are including it so it's currently not high on my priorities. I'm going to sound vague here and I'm not trying to hide anything or sound deliberately vague and, if my memory was right, there was general consensus among staff that we take it off because no-one was in any position to report on it,

no-one knew much about information literacy but I imagine it might have to come in, am I right?

On average how many hours per week would you use a computer?

5 to 10 hours.

Would you primarily use it for school or recreational use?

Majority, perhaps 75%, so I'd so 7 or 8 hours. I rarely use the computer for personal use.

How would you rate your confidence in the educational use of computers.

We have 6 computers in the classroom allows for small groups to work and we have the computer lab. I'm confident that they serve a purpose and the only problem, to state the obvious, is when they break down because you are trying to help sort a problem with one student and have to look after the other 22 to 28 students.

Can you illustrate how you use computers in the classroom?

We use them in our Numeracy and Literacy blocks. For example a group would use 'Spell-force' or 'Numbers-up', CDs for half an hour a week. Occasionally, if a child does some worthwhile writing they word process and type it up in the classroom. I would say we'd do this twice or three times a term. We are rostered for computer lab time and in a general sense, we go down to the lab for 45 minutes a week and the class does some touch typing courses using 'Typing Tournaments' or do some Google searches on topics. I am not sure how comprehensive my program is because I don't know what other schools are doing. I am satisfied that there is a good balance; we don't do too much or too little.

Are these activities planned or are the activities planned to meet objectives?

That's a good point because that was another option in our report that we left off reporting. ICT was an option and I had three criteria: word processing skills another one was Internet searching skills and, I forget the other one and when I sat down to evaluate each student it occurred to me that I hadn't really planned to evaluate each student's work as thoroughly as I'd liked if you know what I mean?

How would you describe your students' use of computers in the classroom?

Oh, remarkably better than previous years and I just think it's that five years ago there were two computers in the classroom and now we have six and now everyone's got one at home so I think they are now far more confident and each year is better than the previous year. At the start of each year, as a matter of interest I usually ask who has a computer at home and this year only one, possibly two don't have Internet at home, while with previous years there was a lot more and now we have a computer lab and now I use CDs in the classroom which I haven't always used, so I've changed too.

Are you familiar with how other teachers are using computers to enhance information literacy?

Yes I am but not entirely. I mean it would appear just sheerly by the example of how each class is computer savvy is at the beginning of the year compared to previous years. To be honest with you I wouldn't know how much any teacher is using the computers or what they are planning. In other Key Learning Areas it is only very slightly different in that I'd have some idea and be aware of some topics they are doing, say in SOSE but I have no idea what they are doing with computers, but I only know what they are doing in SOSE because someone from another class asked me about Tasmanian Devils but generally I wouldn't know

what they were doing, so really, I have no more idea of what they are doing in computers than in any other key learning area.

Appendix F Sample transcript – respondent 22

Respondent 22 (Assistant Principal)

What year level are you currently teaching?

Grade 4

What year levels have you taught in the last 10 years?

Grades 3, 4, 5

How many years have you taught?

15 Years

What has been your most recent involvement in tertiary education?

Currently studying a post-graduate course in religious education. First qualification was a diploma of Teaching. Bachelor of Education was completed in 1993.

Do you feel you have had adequate professional development in curriculum design?

Curriculum design? No. Quite a bit in pedagogy, but as far as curriculum design, no that's vastly different from pedagogy. I'd have to think all the way back to my teacher training days to when I did some curriculum design and that's a long time ago. I remember thinking, when we had registration, when I was Assistant Principal, probably in 1995 and it was my responsibility to update all the curriculum and I thought that it was a mammoth task and I was very surprised that the Catholic Education Office basically did nothing to assist schools who were going through registration and we were one of the first schools. My work was passed around to other schools and I realised how poor it really was. It was pretty Mickey-

mouse it was all rebadging and relabelling and it probably wasn't a very useful curriculum; they were just thrown together, all the key learning areas to pass registration and I doubt whether took any notice of them and rightly so. All the key learning areas was just put together over two months without guidance or structure in a part time. And we are going to have to do it all again with Maths with the NSW syllabus and I really don't think people actually realise the new K-6 NSW syllabus we have been given isn't a curriculum; it doesn't tell them how to use it. That's going to be interesting too; I'm surprised it hasn't had more attention. .

How have you been informed about the Essential Learning framework?

Our school was actually one of the first Catholic Essential Learning schools and I was the Essential Learning officer. That was about 5 years ago so I've been involved with Essential Learning for a long time. I've received a lot of support and we were initially trained by the department of education and it was basically up to us, as Essential Learning officers, to get a good background knowledge of the essentials and to then take a softly, slowly, slowly approach to implementation of the best elements of it. We met as Essential Learning officers twice in Hobart and received limited support. There wasn't a big commitment from Catholic Education Office because I guess they wanted to be involved to seeing what was worthwhile with Essential Learning. For quite some time we have taken on the integrated unit approach but as far as being literate, we've had very little support for that.

How do you feel about the Essential Learnings framework?

I um...I see a lot of value in the pedagogy, as a demand for teachers to improve their teaching. Rather than look at the content, it gets teachers to look at the inquiry base to learning. I think it's been really valuable for our school and it's certainly improved my teaching but I don't believe every teacher would agree. So taking the inquiry approach to our

units and using the thinking element, I don't think we've had a lot of professional development in the area. In my role as Essential Learning officer for two years, no it was for only one year, because I said couldn't deal with being Essential Learning officer and Assistant Principal so I dropped the Essential Learning role and assisted the next Essential Learning officer and that went really well. I found many of the department seminars really helpful.

Can you explain how your classroom curriculum is constructed?

I don't think there is a great uniformity in the school as far as curriculum is concerned and that is something that we really struggle with because I think there is a culture in the school where teachers are not ready or willing to let go of how they are doing things. Although they've come a long way, we still can't get people to think about and to commit to collaborative planning and to plan for collaborate units. We can't get teachers to commit to a two year cycle; they still say, "No I want to do it my way, and he or she can do it her or his way". Myself and my partner-teacher have taken it on board and it has certainly improved both our teaching and we are getting much richer units plus all the other benefits that come from collaborative planning. But as a school, I don't think there is a school-based curriculum in place. People are still doing their own thing, we still haven't got scope and sequence organised; people are still determining their own syllabus for Maths and English. We started to get people to teach genres explicitly with English. Some people are still teaching from one week to the next; it frustrates me but that is the state of affairs. I think it is because we have a lot of older teachers here. I've been in this school for eleven years and many other teachers have been here longer than I have so it's harder for the older more experienced teachers to adopt to someone saying this is the way we are doing things or work with this other person in determining what to teach or, as with scope and sequence, here are some topics that we want you to work on. I feel they think it's change for change's sake rather than for change for

value's sake. But, I think they have to realise that the less capacity the less relevant they become.

Could you explain your feelings about teaching information literacy.

I really don't have a grasp of what is meant by information literacy. In my capacity as Assistant Principal in putting reports together it was one of the first things that did concern me because I realised if I didn't know what the term meant then many other teachers wouldn't either and I was right because many teachers thought it was a branch of information computer technology or computer literacy. My own understanding of it...I guess it is a blurry thing. It's a blurry thing that relates to the idea of the broad concept of text. You know, what is text? There's visual text and written text and there's auditory text and if you have information literacy, oh, well my limited understanding is that you are making sense of information that is available to you but the definition is too blurry because it blurs someone in there, but it's too blurry. You are determining meaning from information that is available to you but it is blurry and it's blurry because for most of us the first time we have seen it was on the report there was no way that we... any of us, can feel comfortable with the term. It might mean something that we have all been doing but who knows. There is no way that we have received any professional development in it and the terminology has never been presented to us. We definitely do not teach it explicitly and it's such an intangible concept that it is impossible to assess and report on it tangibly. It's hard enough to assess someone on their listening skills let alone assessing information on speaking and listening is difficult enough too, but to actually determine how well someone gets information from their environment, well I don't understand how they expect us to do it.

Do you think it's possible to differentiate between knowledge and information?

Oh yes. I guess it's to do with an understanding of their environment. I can see that there are books over there but what do they gain from the books; are they reading books? Does the child understand that the books are to be taken home or are they just there for flipping through? Knowledge is putting together what is there and putting it in context. I guess knowledge is like the data and understanding is its usefulness.

Do you believe that the children have the skills to create knowledge

Some do but I think it's something you can't really teach; reading between the lines and the third meaning and having children pick upon inferences is a complex and high order skill. I think it has a lot to do with exposure and it's certainly an indication of intellectual capacity isn't it, that children can pick up on inferences? I guess it has a lot to do with exposure. If they are not exposed to literature or visual information that is symbolic rather than a literal meaning then they will never pick up on the capacity to gain knowledge or to have ability to come to their own conclusions. If it is always just literal text or information text then I guess there will just be... although there will always be a connection between prior knowledge and making connections between things. I am surprised that children that I have thought were bright can't or don't actually make the connections sometimes. I think it's about exposure and opportunity and I don't think we give them enough time to allow them to come to their own conclusions about things. That's what I like about Essential Learnings. I've liked it in that it gives them more time to think about things come to their own conclusions and connections. It's about dealing with a child's misconceptions about a topic first and that's something I never did, I went straight into the facts but its actually not until you can identify their misconceptions that you have an understanding and can find out where you can go with the topic. I don't know, but I guess it does fit into the realm of information literacy because I guess I can't see how else you can categorise information literacy.

It what ways can learners develop and display discernment, judgement and discrimination when accessing information in the global scale.

I don't think you can teach it because it is high-level thinking and it needs time for discussion and reflection. I find that the best opportunity to do that is with the whole class. You pick up on one great thing that someone says and you think, "Yes, they've got it" and you can rush ahead thinking that they've all got it but it's really only the brighter ones who've got it And that's the danger because three quarters of the class probably haven't got it. I think the ones who have these skills have greater skills in oral communication and it allows you to have courage to say,"I don't get it". A lot of children, however, do have good communication skills but are not able to express themselves in what they're thinking or they can't reflect on their own thinking, to know what they're thinking. It's often just a matter for them saying to themselves, "Well I've got to do this work and get it finished. I'll just have a go. I won't think about it. I won't ask what it means, I'll just do it". How do you get them to do that? Well, I think you need to get a lot more discussion and allow more opportunities for thinking, more small groups guiding and teaching them to think and guide their investigations. And give them more information. It can be a scientific approach such as, "Here's a problem. Why do you think this happens?" It can be scientific by getting them to test their ideas out. Most of the time they need to do this through discussions and arguments and I don't think we have the time or energy to do it justice. Instead, our days are spent just trying to get things finished such as sports' days. I am going to go out on the branch here and say that I like the idea of specialising in primary schools because not all children are going to get information literacy. They are hardwired into a certain way of thinking and we are setting them up for failure. We should expect all children to be proficient in all areas; to get an A or B in everything. I like the idea of setting the school up to allow children to explore philosophy and talking and testing ideas whereas other kids would be best out doors gardening, getting their hands dirty

and that's where they get their pride and sense of achievement from that; they couldn't handle sitting down and talking about things. I think its in Holland that by the end of Primary school, the kids are directed into certain areas based upon the recommendations of how the children are performing in certain subjects and I don't think that's a bad idea. Parents who come to me and say, "What can I do with my child's spelling?" and I say, "Were you good at spelling?" and they usually say, "No". My response is that they probably will never be a good speller because they just will never be good at for the rest of their life. We have an expectation that children should be all-rounders and that's wrong and it's really hard to tell a parent not to worry about the likelihood that their child will not be excellent at all things.

Can you describe your approach to incorporating information resources in your planning?
I guess I don't, I mean I try to use a lot of texts, but I guess it comes from my limited understanding. I use what I previously thought of text. I use a lot of texts; videos, computers, direct teaching, written text. I try to vary the type and there's very little use of the white board but I feel strongly about getting authoritative material for them. I try to provide authoritative text and then less authoritative text such as cartoons and taking things from different perspectives and angles. What I don't do well is I don't let them present their learning in different ways although I try to present information in different formats They usually present their learning in standard written format.

Do you incorporate information literacy in your classroom?
No, no. I don't believe I teach explicitly, information literacy and I suppose that's because I don't have a heightened awareness of it. If it happens, it happens by chance. For example, with literacy blocks, I thought that we all did it because we set aside two hours for teaching literacy such as spelling, reading. But I now know that it involves whole class time, specific skills, task-oriented, cooperative learning, task-oriented guided group work, lots of structure

and it wasn't until I attended an in-service in literacy blocks that I have a heightened awareness of it. Now I do it all the time because of this professional development session and I talked to others about it and I translated that to our Maths block. If I was to receive more in-service, or any in-service about information literacy and its importance to learning, if I was given quality professional development in it, if my understanding was heightened and saw the value in it, if it wasn't rubbish, and I had some more experience in then, yes I would use it a lot more. I'm always looking for a better way to things.

How do you feel about information literacy being mandated as a reporting element?

I thought it was ridiculous, absolutely ridiculous. It was just crazy, honestly and we don't report on their structure. This report form does not reflect on what we teach; It's ridiculous, we aren't going to lie to parents, we aren't going to report on something we don't teach or on how we teach. For example we don't teach SOSE or Science or Health as separate subjects, we integrate our units. And we don't teach thinking on its own and we don't teach information literacy. We don't even know what it means so we won't report on it. We just won't. I can't see us reporting on it. For a report to be valid and if there is anything new to report on We need at least 12months gaining experience in information literacy and then another 12 months on reporting on it so it really is a two year cycle.

On average how many hours per week would you use a computer?

More than 10 hours

Would you primarily use it for school or recreational use?

...Mainly school but outside of school hours, most of it's personal.

How would you rate your confidence in the educational use of computers.

Pretty high. I ...um...try to incorporate the computers in every topic, so for example there is always a computer task for our literacy and Maths blocks and there is lab time for touch-typing skills, word processing and desktop publishing skills. Its very guided and very structured, using games in maths. They use computers to increase their knowledge base although I know a lot of teachers use computers for accessing information, for example, using the Internet but I don't believe that is very valuable or worthwhile because I don't think children can discriminate. What is valuable is the volume out there, there is so much out there. I prefer to find the web site, give them the links to answer certain questions rather than just direct them to the computer and let them investigate a topic on, say, bears, without providing links. It's a very wasteful use of their time and the technology. It's a lot more complex than what they think it will be. There is absolutely more involved in accessing information via the Internet than in the more traditional formats such as books or magazines. For example our literacy texts or visual texts are purposely designed for the children at their expected level whereas the Internet, well even if they know how to search, even adults don't know how to search and tend to give up at times so we really should be teaching them skills in this area but really there is so much out there, so its up to the teacher to find the authoritative information.

Are these activities planned or are the activities planned to meet objectives?

...It does in the sense that I...I choose the Maths and English programs that they use. I am guided by the NSW standards and outcomes and it's more realistic than the National Guidelines. I make sure they are aligned to my grade level so I do use the outcomes, statements and standards upon which to report. They provide a good guide because they allow the teacher to gauge where their children are compared to certain levels and the skills they should have at a certain age.

How would you describe your students' use of computers in the classroom?

Having a lab has made a big difference, a huge difference. Only having three computers in the classroom allowed only a few children to acquire skills and it was really hit and miss. Some children took longer than others and avoided computers, while others picked up the skills a lot faster than others and it was difficult to assist them individually, Some children avoided the computers and it took up classroom resources. Now, with the lab, they experiment and are cooperative and ask each other questions and its fantastic having the lab. It has exceeded my expectations with how valuable it is and how good it has been especially with how they are asking each other questions. They don't need much assistance or even teaching, you let them go and assist where necessary. In the classroom, I couldn't help because I had 27 other kids that I was teaching. Even children with very poor literacy skills are now keen to be involved and they complete tasks in half an hour, setting out work in paragraphs and I believe it is about exposure and the critical element is giving them time to increase their knowledge which tends to multiply their understanding. The amount of work and richness in skills is of a very high quality. I block recreational or inappropriate games, although in wet weather, playing mindless games for 15 minutes is ok. Their skills acquisition definitely used to be acquired at home, but now, with the lab, there are a greater number of experts and their proficiency is shared so we learn a lot at school compared to.

Are you familiar with how other teachers are using computers to enhance information literacy?

...Some teachers aren't using the technology very much...the lab is useful but I know some teachers don't use the lab. I know who is using the lab and I know by the type of help a teacher needs as to whether they are confident. We have a public booking sheet and some teachers haven't booked the lab all year but they have skills and talents in other areas. We

don't meet to discuss computers in a formal meting though and we don't really share ideas, especially in information communication technology because, I suppose, we are all at such different levels of expertise.

Appendix G Outline and invitation to Principals to be involved

August 28, 2006

Dear

My name is Rod Linhart and I am a teacher at Our Lady of Mercy School, Deloraine. As part of my Ph D studies in education at the University of Tasmania (UTAS), I am proposing to conduct research to investigate the extent to which information literacy is integrated within a curriculum that is created by participative decision-making.

My proposal intends conducting research in five primary schools in the Launceston area, which form part of the Catholic Education Office responsibility, Hobart Archdiocese. Approval in principle to conduct this research has been granted by the Catholic Education Office (attachment) and the Faculty of Eduction, UTAS, and the proposal has received ethical approval from the Human Research Ethics Committee (Tas.) Network.

I am writing to request approval from you to conduct research that will involve distributing the Information Sheet and Consent Form (attached) to all staff. My contact details are listed in the Information Sheet, however, I am willing to make myself available at the conclusion of a staff meeting to discuss details with interested staff members. It is important that any participation by staff members in this research be completely voluntary and no staff member feels pressured in any way to participate.

Staff involvement in this research is envisaged to have minimal impact on your school's usual routine; however, it will involve me conducting one interview of 30 to 45 minute duration with each interested participant. The interviews are intended to be conducted with a cohort of three teaching staff members and two members of the school's leadership team.

Interviews can be conducted either at school, outside class teaching hours, or at a mutually convenient time or place, and are planned to occur during the last week of this term or the first three weeks of term three.

Thank you for considering my request and please feel welcome to contact me regarding any aspect of this letter or the accompanying attachments that require elaboration or clarification.

Kind regards,

Rod Linhart

linhart@intas.net.au

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